ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. LXXXVII, No. 24 — Thursday, December 13, 1928

News Print Prices to be Substantially Reduced

Agreement On Fixed Quotation, Somewhere Around $55 or $57 Per Ton, May Result From Conferences of Executives, Which Have Been Continuing in Montreal—Mills Will Probably all be Operating At Around 80 Per Cent of Capacity by January Next —Pulp and Paper Research Institute To Open

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 10, 1928.—News print executives have been continuing their conferences in Montreal during the past week, with the object of straightening out the details of the agreement which has been arrived at for pooling orders and preventing price cutting. The situation, it is said, presented many delicate problems when the discussions were resumed, but it was expected that these would be overcome, and a public statement is expected at any moment.

As the situation now stands it is expected that in January the mills will all be operating at an equal percentage of capacity, probably around 80 per cent, with subsequent changes according to the demand for news print. One paper here has announced a rumor to the effect that prices will be fixed somewhere around $55 or $57, but it should be emphasized that this is mere rumor and that in all probability the price will not actually be fixed until close to the end of the year. In this connection there is a well-founded belief that negotiations have been going not only between the news print manufacturers themselves, but between them and groups of the larger publishers in the United States.

The outlook, in any case, is for prices substantially lower in 1929 than they have been in 1928. A Montreal broker who is an authority on news print stocks sums up the situation as follows: "To adequately size up the news print situation we must know the price to be settled upon for next year. If news print sells close to $50 and the mills are to run around 80 per cent of capacity for a full year, traders can eliminate the news print common stocks from their calculations. If, on the other hand, the mills can get around $54 or $55, a few of the companies will be able to make a moderately good showing on common issues. We have never met a man who has lost faith in the ultimate future of Canada's premier industry but there are many who think that the cure for the existing ills is not coming all at once. We are talking now, of course, from the standpoint of the holder of common stocks. The holder of senior securities has nothing to worry about."

Pulp and Paper Research Institute

The formal opening of the Pulp and Paper Research Institute at McGill University, Montreal, will take place on January 25 next, in connection with the annual meeting of the Canadian Pulp and Paper Association, and the ceremonies will be presided over by His Excellency, Lord Willingdon, the Governor-General.

The Institute, which occupies a new three-story stone structure on University street, abutting on McGill campus, is the culmination of five years' efforts upon the part of the association and will represent, when completed, an investment of upwards of half a million dollars. In the building itself accommodation is provided for the McGill Department of Industrial and Cellulose Chemistry, carried on under the direction of Prof. Harold Hibbert; the Pulp and Paper Division of the Forest Products Laboratories, owned by the Dominion Government, and presided over by E. P. Cameron, director of the division, and the headquarters of the association.

The occasion will be made additionally notable by the attendance of prominent authorities in cellulose research work from Canada, the United States and Europe. The program provides for a special day, January 22, to be given up to a symposium on the subject of "The Fundamentals of Cellulose Chemistry," which will be carried out under the direction of McGill University. There will follow a two-days' meeting of the Technical and the Woodlands Sections of the association. H. J. Buncke, of the Abitibi Power and Paper Company, Ltd., Iroquois Falls, Ont., is chairman of the former and B. F. Avery, in charge of the Woods Department of the Sault Ste. Marie Section of the Abitibi organization, Sault Ste. Marie, Ont., is chairman of the latter.

The annual meeting of the association will be held on Friday morning, January 25, immediately preceding the inauguration of the institute. A luncheon, to be given by the association at the Ritz-Carlton, will follow, and there will be the usual president's dinner in the evening. Col. C. H. L. Jones, of the Mersey Paper Company, Ltd., Halifax, N. S., is this year's president of the association.

Walmsley Company Taken Over

An advertisement of the Dominion Engineering Works, Ltd., of Montreal, announcing that it will guarantee completion of all orders on the books of Charles Walmsley & Co. (Canada), Ltd., is regarded here as tantamount to an official announcement of the consummation of a deal by which Dominion Engineering will take over the Walmsley company. The works of the latter are at Longueuil, a suburb of Montreal.

Charles Walmsley & Co. (Canada), Ltd., formerly a subsidiary of the well-known British firm of Sir W. G. Armstrong, Whitworth & Co., Ltd., passed into Canadian control when it was purchased by Royal Securities Corporation and associates. At the time of the announcement of the acquisition some months ago, the Canadian interests indicated that an energetic program would be adopted with a view to develop the company's business.

The main industry of the company, it was stated, would continue to be the manufacture of news print machines and all other machinery requirements of the pulp and paper industry, but other

(*Continued on page 72*)

New Roofing Plant Planned for Milwaukee

Organization Contemplates Installing Sufficient Equipment to Employ Crew of Sixty Men—Patents Held By Norman P. Harshberger Form Basis of Proposed Products—Former Menasha Printing & Carton Employes Join New Enterprise

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 10, 1928.—Organization of a new roofing concern is contemplated at Milwaukee, Wis., according to announcement last week by Norman P. Harshberger. Details are lacking as to how soon a plant may be established, but the present plans are to install equipment sufficient to employ a crew of sixty men with a payroll of about $100,000 a year.

Mr. Harshberger is being assisted in launching the company by the Milwaukee Association of Commerce. The industrial division has spent about five months investigating the proposition and appears to be convinced that the new company would be feasible and profitable.

Patents held by Mr. Harshberger, who is associated with Frederick E. Theilacker, of Milwaukee, form the basis of the proposed products. Mr. Harshberger is a former salesman of the Barrett Company. About ten years ago he and his wife experimented on cutting out composition shingles to eliminate all waste by the design. The first patents were issued in 1923 and now include 52 different protections on roofing equipment as to design and composition. These have been made on lease and according to one report to the association, a total of $118,000 has been collected in royalties.

Two companies probably will be formed. One is a holding company to exploit the patents, and the other an operating company to manufacture and sell products under the holding company. Five companies are now using the Harshberger patents, it is stated.

E. A. Meyer Paper Co.'s Plans

Further steps have been taken within the last few days in organization of the E. A. Meyer Paper Company, of Peshtigo, Wis. This is the concern that was announced last week as the successor to the Peshtigo Paper Company. E. A. Meyer, general manager of the Menasha Products Company (formerly the Menasha Printing and Carton Company), of Menasha, Wis., resigned and announced that he had purchased the Peshtigo mills. Because of the legal features involved, the bondholders committee was arranging to lease the plant to Mr. Meyer until purchase can be ratified by the court and the deal made. The plant has been operated by P. M. Allen, of Detroit, under a receivership for a number of years.

Frank A. Beisel, general superintendent of the Menasha Products Company, has resigned and will be associated with Mr. Meyer in the new enterprise. Another executive, John J. Meyer, a brother of E. A. Meyer, also leaves the Menasha company. He has been paper mill superintendent and will become plant superintendent of the new company.

Bondholders have been meeting in Milwaukee to go over the proposal of purchase. Present plans are to operate the Peshtigo pulp mill at full capacity immediately, and to operate the two-machine paper mill on a part time basis for a few months until a market has been fully established.

Edward Lewandowski has been appointed to succeed E. A. Meyer in the management of the Menasha Products Company. E. S. LaTondress will succeed Mr. Beisel as general superintendent.

News of the Industry

A new intake pipe has been completed for the water supply of the Riverside Fiber and Paper Company, Appleton, Wis. The pipes are laid to the Government Canal on the Fox River, and were laid in an excavation ten feet deep. The canal was drained between locks to permit the work to be done.

An appropriation of $575,000 for the United States Forest Products Laboratory at Madison, Wis., is included in the recommendations made to Congress by President Calvin Coolidge in his budget message. Paper mill owners are hoping that the appropriation will pass, because they are anxious to see the laboratory expand its work during the years to come. The laboratory, with its highly skilled staff, has made notable contributions to the manufacture of paper, among them the use of many more varieties of wood for pulp, the rod mill and many other features that have cheapened or simplified mill problems.

Beginning December 15, paper mills in every city in the Fox River Valley will have the benefit of air mail service right at their doors. The postoffice department has approved a route from Milwaukee to Green Bay, Wis., including daily stops both ways at Appleton, Neenah, Menasha, Oshkosh and Fond du Lac. By this method direct connections will be made with the transcontinental routes and will speed up considerably the service between the mills and their distant connections in the east and west. Campaigns are being waged by civic organizations to provide enough mail poundage to assure the route for all time. Green Bay lacks an airport at the present time but industries there are subscribing enough funds to provide one for the accommodation of the mail planes.

Repairs are being made to the water power flume of the Cellucotton Products Company's plants at Neenah, Wis. It has been necessary to shut off the water supply and to build a coffer dam in the canal in order to accomplish the work. Retaining walls also are being improved.

W. A. Kelly, mill manager of the Northern Paper Mills, Green Bay, Wis., for the last eight years, has resigned to become vice president and general manager of the Hawley Pulp and Paper Company, of Oregon City, Ore. He came to Green Bay from Wausau, Wis., where he had been superintendent of the Marathon Paper Mills Company for ten years. The company with which he will associate himself has assets of $10,000,000 and operates a paper mill, a sulphite pulp mill and two groundwood mills, with an output of 200 tons daily. The paper mill has a 234-inch news print machine built by the Beloit Iron Works, Beloit, Wis. Production includes news print, wrapping paper, towels and fruit wrappers. Mr. Kelly will be succeeded by F. J. Timmerman, who has been paper mill superintendent for seven years.

Jay O. Posson, well known in power circles, died last week at Kaukauna, Wis., at the age of 46, following illness with pneumonia. He was manager of the municipal water and electrical department of the city of Kaukauna. Since taking over these duties a number of years ago, he has built up power plants that were the most profitable and efficient of any known in the municipal field, and offering power at lower rates than elsewhere. A new power dam was built on the Fox River below Kaukauna under his guidance, and the plant at the city of Kaukauna was recently rebuilt.

Another death of the week was that of Herman Wildhagen, prominent architect of Appleton, Wis. He designed and conducted construction of buildings of the Fox River Paper Company and the Appleton Coated Paper Company, and also had considerable to do with early construction at the Interlake Pulp and Paper Company. He is credited with introducing the Mitscherlich process of cooking and bleaching pulp in this vicinity, in the east, and in Canada.

You can keep your rolls like this with Vickery Doctors—and it certainly does pay.
Let us give you the facts.
BIRD MACHINE COMPANY
South Walpole : : Massachusetts
2495

Demand for Paper "Spotty" in Philadelphia

While Standard Grades of Fine Paper Are In Fair Request, Book Grades and Cover Stocks Are Only Moderately Active—Wrapping Paper Market Is Exhibiting Steadier Tone—Leading Paper Bag Mills Running to Capacity With Heavy Volume of Orders

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 10, 1928.—While a satisfactory volume of paper is moving at this time, there is not the usual vigorous demand which normally attends the holiday month. Wholesalers report greater activity in volume purchases than the distributive branch of the industry. Though a holiday market is at hand there is the same tendency to make concessions in prices which has attended local trading within the past month and complaints are to be heard on all sides of the smaller margins of profits to be shown as a result of the keen competition. Though demand for standard grades of fine paper is fair there is less activity in book grades and cover stocks. Writing papers are being bought by manufacturing stationers, as are those bookkeeping specialties that will be devoted to the opening of New Year accounts. Inventory season, now just in the offing, will bring about a livelier spurt of buying in a few of the paper lines needed for this purpose and already dealers are placing shipments among stationers and larger consumers.

Though competition in wrapping paper stocks and holiday specialties is waxing hot among wholesalers there has been less inroads on prices within the last week. Mill men were keenly alert to sales possibilities last month and made attractive offerings wherever volume business was obtainable. The steadier tone of the wrapping paper market dominated early December. Krafts are firmer. Wholesalers of paper consumed by converters report a fair volume of business. Large consumers are buying fairly well though not as actively as in early November. Envelope and bag manufacturers with extensive output are enjoying a seasonally active market.

While less important bag manufacturing concerns report keen competition for orders, large nationally known manufacturers, with Philadelphia offices and representatives, are forging ahead. Prices show a steadier tendency as holiday orders are extending. Large bag manufacturers, such as the Thomas M. Royal Company, John M. Driver Company, and others of local importance, are running to capacity with orders emanating from all parts of the nation for the newer types of display bags that have been perfected within recent months. This is particularly true of latest developments in cellophane display coverings in bags and wraps used for the better class of merchandise and for food wraps. There is a fair demand for glassines and cigar manufacturers in the local field are heavy consumers of beautifully designed coverings for Christmas boxings.

Philadelphia Trade Looks To South America

Much interest is being taken by the local trade in the bulletin of the United States Chamber of Commerce, "Side Runs on the Paper Trade," calling attention to the splendid opportunities opened in the "Good Will" contact now being established by our next President, Herbert Hoover. It is time Philadelphia industry should awaken to further endeavor in Central and South America and already efforts are being exerted to gain business lost with our southern neighbors. In reviewing trade relationship with South and Central America, the bulletin states that German and Swedish manufacturers have control of the news print and kraft outlet in these countries and with prices that are on a parity with United States and northern country made products which give the manufacturers in these parts an equal trade opportunity with competitors across seas. The bulletin expresses the hope that our manufacturers will take cognizance of these trade conditions and will seek further and broader paper distribution.

Linking Philadelphia with Latin American business contact, two firms have already taken steps to gain trade in that territory. Just a fortnight ago, President Grellet Collins, of the Dill & Collins Company, set sail for South America to look over the field and to further extend distribution of the local mill line of printing papers. The Dill & Collins Company has already a good outlet among the larger printing and publishing concerns in these lands, and with New Year, will materially extend distribution through the territory included in the itinerary of its president. Another Quaker City distributor with broad Latin American contact established since the war, is the Considine Importing Company, a subsidiary of the Paper House of Pennsylvania, with Norbert A. Considine at its helm. There is maintained here a representative and staff of salesmen and correspondents who speak the languages of the South and who are engaged in looking after the sales of that territory, from headquarters.

Schwartz Co. To Move

With a view to extending quarters and stocks, Samuel Schwartz, head of Schwartz & Co., 3 Bank street, is seeking a larger home. The firm has long been established at the Bank street address, where is conducted a wrapping paper and specialty business. While no definite announcement is made of the new location, the proposed extension of business is an assured factor of the new year's plans.

Sayford Paper Co. Issues New Line

Entirely new ideas in paper favors for dining table, parties, banquets, and other social functions and occasions, are being produced for the Christmas season by the Frank M. Sayford Company, of Brooklyn, N. Y., and sold to the trade here by the branch office, Public Ledger Building. These holiday paper novelties in favors are supplemented by a new line of mottoes for the holidays, and decorative doilies.

Willard M. Pringle Made Vice President

Trade congratulations from hosts of friends and associates of Willard M. Pringle, for many years manager of the Seaman Paper Company, with offices in the Atlantic Building, Broad and Spruce streets, were extended in the past week when announcement was made of his election to office in the Seaman Company. At a meeting of the officials of the company held in Chicago last week, he was elected to a vice presidency In the Seaman Paper Company, following a decade of association with the Philadelphia branch as manager.

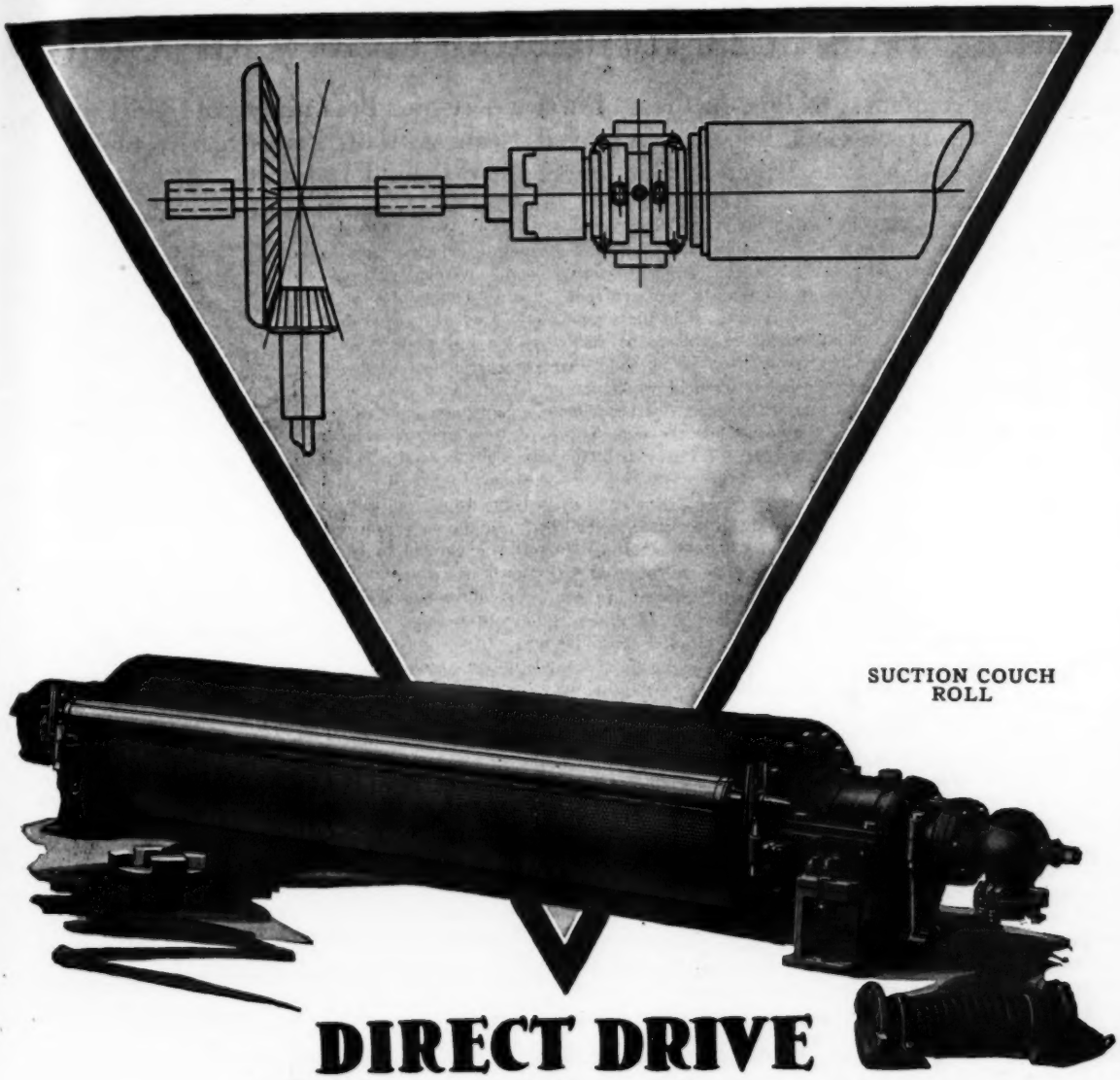
New Fancy Paper For DeJonge Co.

A new 1929 line of fancy papers is now being shown to the trade by the Louis DeJonge Company, of New York, with Philadelphia branch in the Insurance Company of North America Building. The new line covers a colorful array of samplers of the latest popular artistic and elaborately designed fancy box coverings which are now in demand by the allied industries. They are in embossed fancy effects of rich color contrasts and are now ready for stocking. There are also new numbers for the book binders, which will be brought out for the coming year's supplies. Manager William Bollenbach is displaying the new assortment at the local offices and is distributing samples to dealers and consumers.

Schroon River Mill Reopens

[FROM OUR REGULAR CORRESPONDENT]

WARRENSBURG, N. Y., December 10, 1928.—The Schroon River Pulp and Paper Company is again in full operation after being shut down for a few days last week while extensive repairs were being made to plant and equipment.



SUCTION COUCH ROLL

DIRECT DRIVE
A Kilberry Development

DIRECT connection of the suction roll to couch or press drive is an exclusive, patented feature of the Kilberry Roll. No gears are used therefore the power loss and difficulties encountered with same are eliminated.

The Suction Box in the Kilberry Roll is concentric to shell, easily adjusted and removed, and is carried in ball bearings within steel journals. The shell of the Press Roll is drilled with holes in a spiral-staggered pattern,—another Kilberry Development.

Get the facts and compare values.

Our Products Meet Our Promises

DOWNINGTOWN Manufacturing Company Downingtown, Pa., U. S. A.

CAN. REP. FOR KILBERRY SUCTION ROLLS CHAS. WALMSLEY & CO. CANADA LTD. MONTREAL, QUE.

Holiday Business Reported Heavy in Chicago

Wrapping Paper Market Riding on Crest of Wave—Tissues Practically Sold Up Until Beginning of New Year—Book Paper in Improved Request, With Prices Steady to Firm—Fine Paper Production Slightly Behind Demand

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 10, 1928.—Pre-holiday retail business is reported as the heaviest in some years, according to various business reports in circulation this week. Luxuries are getting an exceptionally heavy play from amateur speculators who are said to have "cleaned up" recently. Sales of paper used in the wrapping, shipping and display of merchandise are said to be very good as retail business continues to grow heavier. Book paper is improving with prices firm while in the fine paper field production is just slightly behind demand with prices steady. Tissues are reported "sold up" until the first of the year while the wrapping paper market continues to ride on the crest of heavy holiday business.

There is considerable comment in Chicago paper circles on the price of news print, with quotations for 1929 reported lower. Waiting and expectation characterize this market here. The board market is beginning to get into its seasonal decline and a gradual dropping off in sales is being experienced. This is reflected in the board grades of waste paper that are falling off slightly. However, other grades of waste paper are fairly active and in good demand according to reports.

Seaman Paper Co. Entertains

The Seaman Paper Company, Chicago, entertained the Chicago Printing Estimators Club at a dinner and program held at the Drake Hotel, Thursday evening, December 6. Dinner was served at 6:30. Following this the Chicago Printing Estimators Club held their regular business meeting and then turned the entire affair over to the very capable hands of the Seaman Paper Company. As in the past, the Seaman Paper Company proved an exceptionally entertaining host and the varied program following the business meeting was both interesting and entertaining to the more than one hundred guests present. W. F. Hirst, of the Seaman Paper Company, was the main speaker of the evening. He discussed the uses and possibilities of fancy finish and deckle edge papers in the making up of announcements and direct mail material assuring those present that if they were not already in this interesting and profitable field that they were missing something. The proper choice of attractive and dependable papers made possible the opening up of a new line of business, according to Mr. Hirst, and he urged those present to make the best of this opportunity. The Four Nighthawks, an entertaining foresome composed of a string quartet with plenty of ability to sing along with their other accomplishments, furnished most of the lighter entertainment of the evening.

Paperboard Industry to Meet in Chicago

The recent annual meeting of the Paperboard Industrial Association, held at the Waldorf-Astoria Hotel, New York, on November 21 and 22, was of unusual interest to Chicago members of the association and it attracted the presence of a large number of these men. J. P. Brunt, a former president of the Paperboard Industries Association was one of the Chicago executives honored at the meeting at which officers for the coming year were elected. Mr. Brunt was elected as a member of the executive committee representing the Paperboard Group, along with J. H. MacLeod, of the Hinde & Dauch Paper Company, Sandusky, Ohio.

Chicago activities were again brought into the limelight when President Alford reviewed the work of the association's special committee on the Trade Practice Conference, including the result of the conference of the industry held in Chicago on November 2 and the hearing before the Federal Trade Commission on November 3. Complete agreement has been reached on all resolutions with the exception of one relating to price discrimination and another relating to selling below cost.

The next meeting of the association is scheduled to be held in Chicago on Wednesday, January 23, and Thursday, January 24, at which time the newly elected officers: J. J. Brossard, Fort Wayne Corrugated Paper Company, president; Hugh Strange, John Strange Paper Company, vice-president paperboard group; H. C. Krannert, Inland Box Corporation, vice-president container group, and H. H. Stonebarger, Globe Folding Box Company, vice-president folding box group will take up active duties as executive heads.

Paper Men Attend Beckett Funeral

A number of paper men from Chicago were in Hamilton, Ohio, Friday, December 7, at the funeral of Mr. Minor Beckett, president of the Beckett Paper Company of that city. Mr. Beckett was killed as the result of a fall from one of the windows in his home. Mr. Beckett had a large acquaintanceship in Chicago paper circles and a number of firms in this territory have business connections with his firm extending over a lengthy period of years. Included in the list of those who went to Hamilton to attend the funeral were Jack White, of the James White Paper Company, and Carl Nolting, of the J. W. Butler Paper Company, who's firm have both had close friendly and business relations with both Mr. Beckett and his company.

News of the Trade

E. Z. Cornwell, formerly a salesman with the Chicago Paper Company, 801 South Wells street, has recently accepted a position in the sales department of the Empire Paper Company, according to an announcement given out by Harry Joyce of the latter company. Mr. Cornwell has been in the paper game in Chicago for a number of years and his wide acquaintanceship is expected to stand him in excellent stead in his new connection.

Two Chicago firms were recently elected to membership in the American Paper and Pulp Association, including the Celotex Company, of which B. G. Dahlberg is president, and the Fibre Making Process, Inc.

Suit Filed Against Fidalgo Pulp Mfg. Co.

On November 28, suit in equity was filed in Federal Court, Western District of Washington against the Fidalgo Pulp Manufacturing Company, Anacortes, Wash., its directors and stockholders by R. D. Kehoe, president of the Technical Economist Corporation and represented by Seattle attorneys Grosscup, Morrow and Wallace to enforce delivery of U. S. Patent 1668446 and Canadian patent 272546 together with all foreign rights in these patents and in accordrance with option that was exercised by legal tender. The suit also seeks to prevent the Fidalgo Pulp Manufacturing Company from wrongfully attempting use of these patents for its own purposes.

New Union Bag Plant Nearly Ready

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 7, 1928.—Vern Murchie, who has been transferred from the plant of the Union Bag Company at Bogalusa, La., to superintend the new bag plant of the company now under construction at Vancouver, Washington, arrived at his new location late in November with his family.

Machinery is being installed rapidly at this plant, and it is expected that operation will start the first of the year. About 100 men and women will be employed, and the production capacity of the factory is rated at 3,000,000 bags daily.

IMPORTANT
ANNOUNCEMENT

Re Digester Filling

We have been requested by our Principals, Messrs. A/B A. Ekstroms Maskinaffar of Stockholm, Sweden, to announce that the SVENSSON CHIP FILLING DEVICE, which they control and which is patented here in Canada and the United States, covers the method of using steam when filling digesters.

Any mill using any apparatus, whatever it may be, together with steam for obtaining an increased amount of chips in digesters is infringing the Svensson patent and are liable to pay royalty to us for same. We would ask all such mills, and any other mills interested, to kindly communicate with us as early as possible as our Principals' expert engineer is in this country for a few months only, and we will be pleased to promptly adjust matters as well as give advices as to how the best possible results in this respect can be obtained.

In accordance with reports received a considerably increased output from digesters and a saving in steam and acid can be achieved, and has already been obtained with this Process.

Please

Write Promptly to

PAPER MACHINERY LIMITED

Head Office: 413 DRUMMOND BUILDING, MONTREAL. Tel. Uptown 4682-4683

Sole Representative in U.S.A.: G. D. JENSSEN CO., 200 Fifth Ave., New York City.

News Print Commission Judgment Appealed

E. A. Wallberg and Lake St. John Power & Paper Co. Appeal Decision Awarding One Per Cent Commission to Charles E. Campbell on Ten Years' Contract With Newspaper & Magazine Paper Corp.—Cross Appeal Entered by Plaintiff

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 10, 1928.—The judgment by which Justice McEvoy awarded to Charles E. Campbell, Edmonton newspaper man, commission at 1 per cent on the sale of between $30,000,000 and $40,000,000 of news print, was appealed this week before the First Divisional Court by E. A. Wallberg and the Lake St. John Power and Paper Company, who were defendants in the action brought by Mr. Campbell. The action, on which judgment was given on November 14, was brought by Mr. Campbell on the ground that he had negotiated a ten-year contract for the sale from Mr. Wallberg to the Newspaper and Magazine Paper Corporation of New York City of the whole ten years output of Mr. Wallberg's news print mill in Quebec. Claiming that he had effected Mr. Wallberg's introduction to Lester J. Clarke, president of the Newspaper and Magazine Paper Corporation, on Mr. Walberg's promise of a commission, Mr. Campbell sued for 3 per cent on the value of news print already sold. As a cross-appeal to the appeal by defendants, Mr. Campbell again seeks commission at 3 per cent instead of the 1 per cent awarded by the trial judge. While the amount of the award was not stated in the judgment, being referred to the Master-in-Chambers for determination, it was estimated at between $300,000 and $400,000 for news print already sold since the commencement of the contract in December, 1926.

Australia To Compete With Canada

Canada's export of pulpwood to Australia will soon meet with stiff competition among the paper makers in the latter country, according to I. H. Boas of Melbourne, who arrived in Ottawa this week. Mr. Boas, who is chief of the Division of Forest Products and of the Council of Scientific and Industrial Research, said that after years of experimentation Australia had succeeded in converting its hard woods into a high grade of paper, a process considered almost impossible a few years ago. While in Ottawa Mr. Boas will confer with Government officials concerning forest conservation methods. He maintains that both Canada and Australia waste huge quantities of forest products each year, and can learn much from European countries, especially Germany, in the matter of converting waste materials into valuable by-products.

Corrugated Paper Box Co. To Build

Working plans have been started by a Toronto firm of architects for the Corrugated Paper Box Company, Ltd., 187 Geary avenue, which firm proposes to erect a large new plant at Leaside, a city suburb. The company has purchased five acres of land from the Canadian National Railways, on which the new factory, comprising the main unit single story, 200x700 feet, offices, and warehouse unit, 150x200 feet will be erected. J. S. Whealy is president of the company which is one of the largest manufacturers of corrugated paper boxes in the Dominion. It is proposed to go right ahead with the work so that the firm may begin manufacturing operations in the spring.

Rag and Paper Stock Market

Considerable change has come over the rag and paper stock market in Ontario during the past week or ten days. There is something like a war on among the manufacturers of chip board in the United States. Momentarily, the price has dropped to somewhere around $30, or about $10 below quotations prevailing in Canada. Hence the box makers in the United States are anxious to get all they can of it while the getting is so good. This means a very exceptional demand on paper stock, which demand extends to Canada. Dealers in centers like Toronto are finding themselves severely taxed to preserve their avenues of supplies intact. Domestic demand shows no decrease, but dealers here are doing their utmost, by means of newspaper advertising and direct mail solicitations, the Boy Scouts, etc., to ensure adequate supplies. It is not likely that local prices will be raised, although there is a possibility of such a contingency should the present situation across the line continue. The board mills are all active and the big demand that at present exists will likely continue for some time according to present indications for there is great activity among the paper box manufacturers.

Firstbrook Boxes, Ltd., Listed on Exchange

Preference shares of Firstbrook Boxes, Ltd., are now listed on the curb section of the Toronto Stock Exchange. The authorized capitalization of the company consists of $500,000 6 per cent first mortgage thirty-year sinking fund bonds, 10,000 shares of 7 per cent cumulative sinking fund shares, 5,000 of which have been issued, and 90,000 shares of common stock of no par value, 60,000 of which have been issued. The preferred stock is selling at around 94 on the Exchange. Control and management of the company are in the hands of John Firstbrook, chairman of the board; E. Victor Donaldson, general manager, and Harold Firstbrook, vice-president, all of whom were closely connected with the predecessor companies, namely, Firstbrook Bros., Ltd., and Canadian Cartons, Ltd. The organization is now building a large factory at Mount Dennis, just outside Toronto, for the manufacture of paper boxes, cartons, etc.

Well-known Paper Man Loses Son

The sympathy of a wide circle of friends in the paper manufacturing business in Ontario was extended to H. Balm, of the executive staff of Kilgour Bros., Ltd., paper bag manufacturers, Toronto, in the death of his son, Captain C. Howard Balm, who passed away after an illness of over a year's duration. The young man was born in Toronto and educated at Upper Canada College and McGill University. He served with the Canadian Engineers in the Great War and suffered gas poisoning and shell shock. He was associated with a well known bond house in Toronto and was a promising young business man. His wife predeceased him a year ago and grief over her death is stated to have caused the illness to which he succumbed.

Notes and Jottings of the Trade

The new mill in Toronto of the Canadian Paperboard Company, Ltd., is fast approaching to its ultimate capacity of 100 tons of board per day, by means of a gradual synchronization of all sections of the mill. The grade of paper that is being turned out is said to be very satisfactory.

Victor M. Drury has been elected president of the E. B. Eddy Company, Ottawa and Hull, to succeed the late George H. Millen, who had been president since 1914.

L. J. Kugleman, of the woodlands department of the International Paper Company, New York, was a recent business visitor in Toronto.

George W. Pauline and George C. Winlow, of the Alliance Paper Mills, Ltd., head office Toronto, have returned from a business trip to Winnipeg, Man.

E. J. Thom, of the pulp division of the Howard Smith Paper Mills, Ltd., was a business visitor in Toronto a few days ago.

T. B. Little, of the T. B. Little Company, Ltd., wholesale paper merchants, Montreal, was a caller on the paper trade in Toronto last week.

The wooden water mill, which has turned continuously in Crooks' Hollow, Greensville, near Hamilton, Ont., for 115 years

Fulton
Dryer Drainage Systems

Definite Assurance—

that the installation of a FULTON DRYER DRAINAGE SYSTEM will positively—

INCREASE MILL PRODUCTION
MATERIALLY IMPROVE THE SHEET
REDUCE STEAM COSTS TO A MINIMUM

The Guarantee

"We guarantee maximum steam temperature in the paper machine dryers at all times, and no water present at any time."

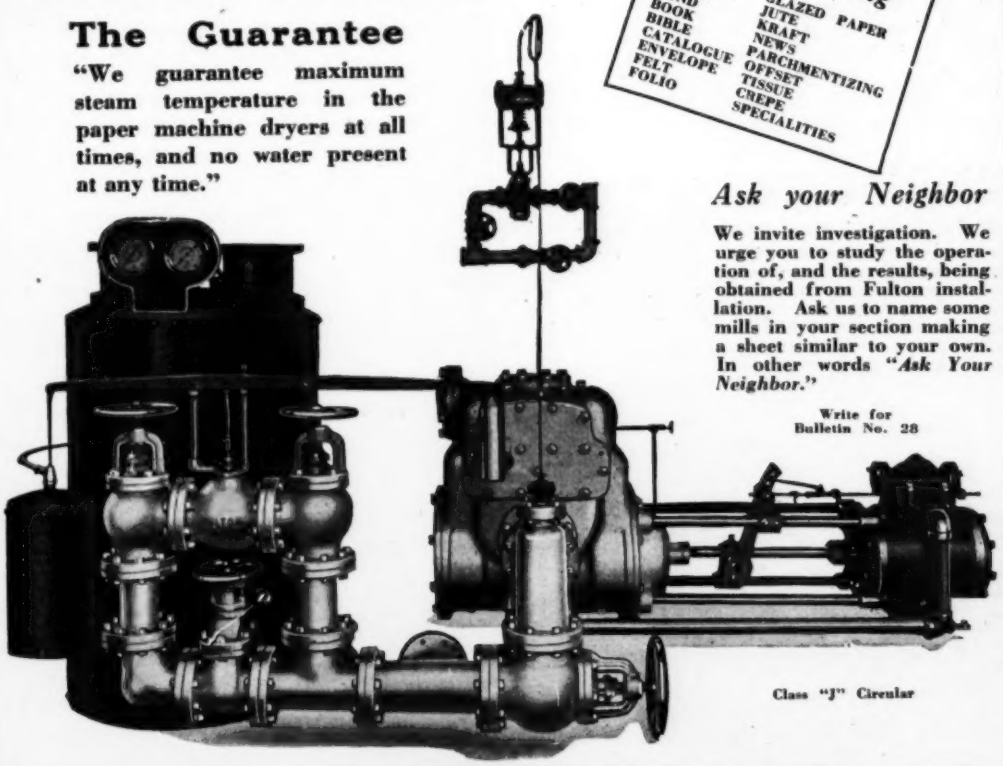
FULTON SYSTEMS
a big Success in well onto 200 Mills producing

ASBESTOS BOARD
BOND
BOOK
BIBLE
CATALOGUE
ENVELOPE
FELT
FOLIO
GLAZED PAPER
JUTE
KRAFT
NEWS
PARCHMENTIZING
OFFSET
TISSUE
CREPE
SPECIALITIES

Ask your Neighbor

We invite investigation. We urge you to study the operation of, and the results, being obtained from Fulton installation. Ask us to name some mills in your section making a sheet similar to your own. In other words *"Ask Your Neighbor."*

Write for Bulletin No. 28



Class "J" Circular

FULTON ENGINEERING CO.
MIDDLETOWN, OHIO. U.S.A.

Western Rep. **WOODBURY & WHEELER CO.**
55 SECOND ST. PORTLAND, OREGON

since it was installed in 1813 to furnish power for the Stutt Paper mill, had its first stoppage a few days ago, when its axle collapsed. It was repaired in a short time, however, and is expected to furnish many more years' service.

Plans decided upon for the new head office of Provincial Paper, Ltd., in Toronto, call for a substantial two story structure of stone on University avenue, not far from their present site. Interlake Tissue Mills, Ltd., have already made arrangements for space on the ground floor and Provincial will occupy the second. Provision has been made for the carrying of several extra stories if and when required. The companies affected expect to secure occupancy by June 1 next year.

A visitor to Toronto this week was Sir Mark Seldon, head of Carmichael & Co., the widely known importers and distributors of paper, printers supplies, etc., with headquarters at Sydney, Australia. While in the city Sir Mark saw several of the paper mill men and expressed satisfaction at the manner in which the news print situation had been handled by the premiers of Ontario and Quebec, predicting that before a year has elapsed the industry will be on a steady and normal basis again. He himself sat in at a number of conferences on the subject in Montreal.

David Robertson, of the Canada Paperboard Company, Ltd., Montreal, was in Toronto a few days ago calling on the boxboard distributors.

Marshall Ball, manager of the Jonqueire, Que., mill of Price Bros., was a business visitor in Toronto recently.

S. Harvey Smith, of the Laurentide Company, Quebec. called on a section of the Toronto paper trade last week.

With an attractive cover printed on Provincial Offset, the latest number of Provincial's Papyrus, the house organ put out by Provincial Paper, Ltd., has been placed in the hands of paper merchants and printers. The book is well edited and printed and contains a digest of the news among the paper dealers and manufacturers, as well as some special articles.

Munising Paper Co. Makes Improvements

Production facilities of the Munising Paper Company are geared up to take care of the tremendous demand that the concentration on production of one product, Caslon Bond, and its advertising campaign has ingendered.

To insure absolutely clean wood there has been installed an additional 10 x 30 American Drum Barker and to handle and burn refuse from its machine, there is now being used a giant Nekoosa press.

In the sulphite mill the Munising Paper Company has enlarged and installed additional riffilers to settle out the large knots and dirt before the pulp goes on to the flat screens. Four new lines of Sandy Hill Iron and Brass Works flat screens of the latest type together with plates, have been purchased to insure a minimum of dirt getting into the stock. Oliver washers have been installed to get out all of the bleach liquor and impurities and produce an absolutely clean white sulphite pulp.

Ten of the Norwood Engineering Companies sand filters with a capacity of ten million gallons of water a day give the Munising Paper Company an ample supply of the best water obtainable by any paper mill.

Windows of the machine room have been sealed and all air is being screened and washed. The same system serves the finishing room, which enjoys in addition, a modern humidifying system to insure perfect cleanliness and an even amount of moisture in the air so the Caslon Bond will lay flat and not curl or wrinkle. When packed the stock leaves Munising in perfect condition for working.

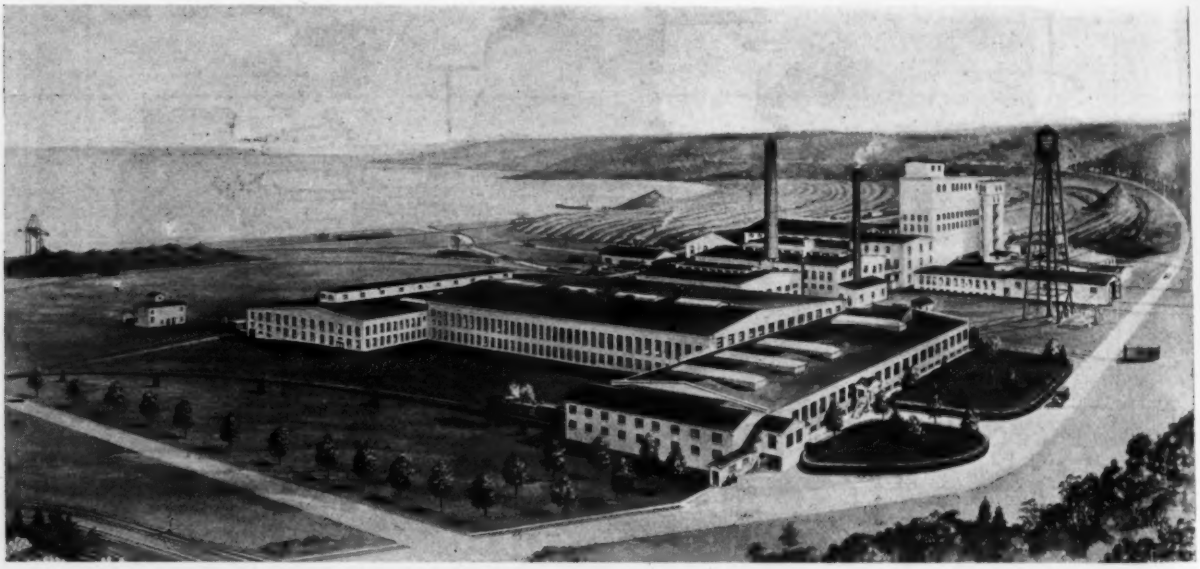
National Paper Products Plant Damaged

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., December 10, 1928.—Considerable damage was done to the plant of the National Paper Products Company when the transformer blew out during the past week. The mishap caused a suspension of operation for some time and the damage could not be estimated. The entire damage was confined to the transformer room. Firemen responded quickly to the call but nothing could be done until the current was turned off in the substation. Chemicals were used in combating the blaze which was extinguished after a hard fight. The cause of the blowing out of the transformer could not be accounted for, although it was said that electrical troubles in the Watertown power plant might have some connection with it.

G. Gabbard Killed in Motor Accident

DAYTON, Ohio, December 3, 1928.—Green Gabbard, 30 years old, residing at East avenue and Grand Boulevard, and employed by the Champion Coated Paper Company, was killed, and Thomas McQueen was injured, when their automobile overturned in a ditch at Hamilton this week.



PLANT OF THE MUNISING PAPER CO.

Paul Bunyan Is Here!

In those delightful fables of the North Woods, Paul Bunyan does wondrous works, far beyond the realm of human possibility, always on a gigantic scale.

But what was the miracle of yesterday is the reality of today. Norton Pulpstones — modern giants — with speed and regularity shred the millions of logs which flow down to the paper mills.

Mere man could not compete with Bunyan in the North Woods. Even so the old quarried standstones yield to the prowess of pulpstones, manufactured by Norton. The North Woods bow in homage to the new abrasive giant.

Norton Company, Worcester, Mass.

Canadian Trade now Supplied from Canadian Plant

Grinding Wheels
Grinding Machines

NORTON
PULP STONES

Refractories - Floor
and Stair Tiles

K. V. P. Co. Makes Paper from Corn Stalks

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., December 10, 1928.—The successful manufacture of paper from a corn stalk pulp has been achieved by the Kalamazoo Vegetable Parchment Company. For thirty years laboratory experiments along this line have followed one upon another and very small lots of paper have been made and displayed. It remained for the local concern to make this method of production a practical commercial accomplishment.

The pulp used is made from corn stalks by the Corn Stalks Product Company, Danville, Ill. Almost from the outset of the experimental stage samples of this pulp were brought to the Kalamazoo Vegetable Parchment Company and examined by the mill's technical department. It was not until there was enough of the pulp on hand for a commercial run of paper that President Kindleberger consented to run the material through the company's new Beloit Fourdrinier machine.

First Product a Success

"Our first product was a success," said Mr. Kindleberger. "We were able to turn out a very fine grade of book paper from the very outset. Of course it was not pure corn stalk pulp, but a proper mixture developed in our plant in which we were able to use about 65 per cent of corn stalk pulp to 35 per cent of other materials."

E. T. Hulbert, chief engineer of the Corn Stalks Product Company, carried the news back to Danville and the corn belt. The effect was electrical and since that date residents of the corn belt have invaded the K. V. P. to discuss with President Kindleberger the new product, while to quote the latter, "every town in the corn growing area believes it has become the logical site for a pulp mill."

Recognition from Other Sources

Recognition of the achievement comes from other sources. The *Danville News* announces that its issue of December 15 will be printed entirely on corn stalk paper, while on the same date, the *Prairie Farmer*, Chicago, America's oldest agricultural paper, will also appear on a like product. It will require approximately 100 tons of paper to fill those two orders.

The *Prairie Farmer* in announcing its special edition says: "First entire issue on corn stalk paper! December 15 *Prairie Farmer* to be printed on paper from the Illinois corn fields.

"Think of it! The paper for this special issue was grown on Illinois farms. Imagine the thrill of our subscribers when they read this number printed on one of their own farm products."

The *Prairie Farmer* goes on to show that the farmers within 12 miles of Danville have received $180,000 this year for their stalks, an extra profit of $3 to $5 an acre for their corn land. This raw material is available throughout the corn belt, but any city contemplating the erection of a pulp mill must first be assured of a satisfactory water supply, according to Mr. Kindleberger.

Farm Products in Industry

George M. Rommel, of the United States Agricultural Department, has written an important work, entitled "Farm Products in Industry." In this he deals with the utilization of agricultural waste, declaring that if all materials could be properly conserved, it would add $1,500,000,000 annually to the income of farmers. His book will be printed on corn stalk paper made by the Kalamazoo Vegetable Parchment Company.

Statement from Mr. Hulbert

Mr. Hulbert states that the output of the Cornstalks Product Company's plant is now 20 tons of pulp a day, but will soon be increased to 60 tons. The only explanation he makes of the process of manufacture is the following in a letter to the Alling and Cory Company, Pittsburgh: "The silicas are removed in the first bleaching process which we give the stalks. The process which we are using here is one that has been developed in the past eight months of rather intensive experimenting and study and at the present time much of this process detail is being carried through the patent office. We can say at this time the process is a simple one and in every way satisfactory from a commercial standpoint. We are able to get a sufficiently high yield to make the pulping process interesting from the commercial side. We use everything in the stalk and no attempt is made at segregation of the different fibers. The only part of the corn plant not going through our digesters at the present time is the kernel itself and the cob.

"Until such time as we have thoroughly developed the technical process of conversion into finished papers at the Kalamazoo Vegetable Parchment mill we are not interested in converting pulp at other mills, our reason for this being that the pulp itself has its own technique and is radically different than wood pulps in that it changes its character very rapidly under mechanical handling and it would be suicide for us to expect the average paper maker to do anything with it until he is thoroughly familiar with its many peculiarities."

Since the above letter was written, the Corn Stalks Product Company has entered into an agreement with the Kalamazoo Vegetable Parchment Company to furnish pulp to the local firm exclusively.

Mr. Kindleberger Optimistic

President Kindleberger is confident that the Corn Stalks Product Company is on the right track and that a high grade of paper can be produced. On the initial run of the pulp over the new 164-inch Beloit Fourdrinier, 58,000 pounds of the sheet were produced in nine hours without coming off the reels. In addition to the regulation machine finished book, the K. V. P. has also made numerous specialties. The paper has also been tested for coating and can be said to coat perfectly.

"I believe they are on the right track," said Mr. Kindleberger, "though they have plenty of development work ahead of them and plenty of problems to solve. The corn stalk pulp can be worked successfully, but I believe a mixture will always be required. We used 65 per cent of corn stalk pulp in our first run mixtures and expect to raise that in the future to 75 per cent. Our technical department studied the problem carefully and we succeeded in getting a good mixture. That is always of vital importance.

"I warned the Corn Stalks Products Company to make a pulp suitable for the manufacture of good paper. They are inclined to accept that advice. If they ever allowed themselves to make a cheap pulp, it would always remain a cheap pulp in the minds of the trade."

Amalgamated Tablet Co. To Build

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., December 10, 1928.—The Domil Construction has started excavation work on the site of the new plant of the Amalgamated Tablet Company and actual construction will be under way within a few weeks. Prospects are that the plant will be ready for occupancy by February 1 and it is understood that the equipment of the Brooklyn plant will be removed to this place. The company plans to employ about 200 persons in the manufacture of writing tablets from paper products of the International Paper Company, which will be located near the new plant.

The new structure will be one story high, of concrete and brick construction with considerable attention given to lighting facilities. All of the roof and much of the sides will be of glass and approximately 16,000 square feet of manufacturing space will be available. The building will be so situated that its materials will be easily obtained from the mills of the International Paper Company, a few hundred yards away, and its shipping facilities will be very handy with the terminal dock of the barge canal at one end of its plant.

AFAFAFAFAFAFAFAFAFAFAFAFAFAFAFAF

Any 7⅛ size hat fits a 7⅛ size head

... but it doesn't fit every face ...

Felts, too, must be fitted in *More than Dimensions* —

Length and breadth do not make a perfect fitting felt any more than head size makes a perfect fitting hat. Unless the felt is fitted to every element on its machine, perfect performance is a matter of chance.

Every machine has individual characteristics. That is why each Albany Felt is "tailor-made"* for a definite position on a definite machine. Not fitted in dimensions only, but to the conditions peculiar to the position on which it is to run.

Before an Albany Felt is designed, the facts that have a bearing on performance are carefully considered.

Wool, strand count, twist, weave, design, all are selected for a definite purpose - - with results in mind. Constant checks and rechecks during manufacture assure an Albany Felt best fitted for the work it is intended to do.

Give Albany "Tailor-Made" Felts a fair trial - - and bear in mind that the more information you furnish us, the better we can assure you a Felt that FITS.

★ Every order for an Albany Felt is a "special" order. Every Albany Felt is "tailor-made" to fit specified conditions on the definite machine and position for which it is individually designed.

ALBANY FELTS

TAILOR-MADE BY ALBANY FELT COMPANY, ALBANY, NEW YORK

AFAFAFAFAFAFAFAFAFAFAFAFAFAFAFAF

Paperboard Industries Association Meets

The annual meeting of the Paperboard Industries Association was held at the Waldorf-Astoria Hotel, New York City, Thursday, November 22, 1928. At this meeting and at the Group meetings held on the 21st and 22nd, the following officers were elected for the ensuing year:

President and chairman of Executive Committee: John J. Brossard, of the Fort Wayne Corrugated Paper Company, Fort Wayne, Ind. Vice-president—Paperboard Group: Hugh Strange, of the John Strange Paper Company, Menasha, Wis. Vice-president—Container Group: H. C. Krannert, of the Inland Box Corporation, Indianapolis, Ind. Vice-president—Folding Box Group: H. H. Stonebarger, of The Globe Folding Box Company, Cincinnati, Ohio.

In addition to the president, who was elected by the general membership, and the vice-presidents, elected by the individual groups, each of whom was elected a member of the executive committee, the following were also elected as members of the executive committee:

Representing the Paperboard Group: J. P. Brunt, of the Container Corporation of America, Chicago, Ill.; J. H. Macleod, of The Hinde & Dauch Paper Company, Sandusky, Ohio. Representing the Container Group: J. J. Brossard, of the Fort Wayne Corrugated Paper Company, Fort Wayne, Ind.; Robert Gair, Jr., of the Robert Gair Company, New York, N. Y. Representing the Folding Box Group: W. G. Latham, of the Fort Orange Paper Company, Castleton-on-Hudson, N. Y.; W. H. Richardson, of The Richardson Company, Lockland, Ohio.

The Annual Meeting

The annual meeting of the three groups of the association convened at 2 p.m., Thursday, November 22, with President W. J. Alford, Jr., presiding. As the first order of business, President Alford announced that a meeting of the executive committee had been held on November 20. The executive committee's report to the membership, which was submitted by President Alford, was received with interest.

Proposed Standards for Buying and Selling

The meeting endorced certain proposed Standards for Buying and Selling, as recommended by the National Association of Purchasing Agents for general adoption by all branches of the industry.

Calendar Simplification

In the matter of calendar simplification, the members adopted the following resolution:

RESOLVED, That the Paperboard Industries Association goes on record as being heartily in favor of calendar simplification and that it favors the principle of 13 months of 28 days each; and

RESOLVED, FURTHER, That copy of this resolution be transmitted to the National Committee on Calendar Simplification for the United States.

Election of Members

The following companies were unanimously elected to membership in the Container Group: D. L. & D. Corr. Paper Products Company, Brooklyn, N. Y.; Eastern Corrugated Container Company, Brooklyn, N. Y.; Empire Printing and Box Company, Atlanta, Ga.; David M. Lea & Co., Inc., Richmond, Va.; National Container Corporation, Long Island City, N. Y.; Pomeroy Manufacturing Company, Vincennes, Ind.

Sales Promotion Committee's Report

An interesting report on the subject of extending the use of paperboard and paperboard products was submitted by the Sales Promotion Committee, of which Mr. J. H. Macleod is chairman. At the direction of Chairman Macleod, a summary of sales promotion activities for the year 1928 was submitted by Mr. A. W. Luhrs, of the sales promotion staff. The report showed conclusively that the use of paperboard and paperboard products has been materially increased in a number of specific fields.

General Manager Browder's Reports

General Manager Browder submitted a concise report of the principal activities of the association since the last meeting. Specific reference was made to the following items: General Association Status; Membership Status; Relations with American Railway Association and Committees; Inspection Service to Maintain the Quality of Corrugated and Solid Fiber Boxes.

The general manager's report was accepted and copies have been mailed to members with the minutes of the meeting.

Report of Irving Hill

Irving Hill submitted an interesting and constructive report covering his attendance at the meeting of the Chamber of Commerce of the U. S. A., at Hot Springs, Ark., October 8-9, 1928, as the representative of the Paperboard Industries Association. He further suggested the view that the activities of the U. S. Chamber of Commerce are most effective and that they should be supported wholeheartedly by American business.

Economist's Report on General Business

Chairman Hugh Strange, of the statistical committee, introduced Dr. E. O. Merchant, economist, who submitted a report on the subject of "General Business Conditions and the Paperboard Industries," and the outlook for the future.

The economist's remarks were supplemented by reference to charts depicting basic conditions in the paperboard industries, as well as other charts showing the trends in the more or less analogous industries. The economist's report was well received.

Trade Practice Conference

President Alford reviewed the work of the association's special committee on the Trade Practice Conference, including the result of the conference of the industry held in Chicago, November 2, 1928, and the hearing before the Federal Trade Commission on November 3. He reported that the special committee, appointed July, 1928, had held two meetings in New York City, two in Chicago and a fifth meeting at Chicago, prior to the conference of the industry on November 2. Further, in connection with the subject, President Alford said:

"As you know, there has been developed and submitted to the Federal Trade Commission a substantial list of trade practices. The practices have been accepted almost unanimously by the entire industry, both members and non-members. Complete agreement has been reached on all of the resolutions, except two, namely—Proposed Resolution No. 5, relating to 'Price Discrimination'; Proposed Resolution No. 14, relating to 'Sales Below Cost.'

"Your committee was requested to give consideration to a redrafting of these two resolutions in a form which would be acceptable to the industry, and a meeting for this purpose was held in New York City, Tuesday, November 20, which was attended by the members of the special committee, namely, W. J. Alford, Jr., H. S. Hinkle, Geo. W. Gair, J. J. Brossard, J. B. Fenton, Samuel Samuels, J. P. Brunt, Sidney Frohman.

"Also present, by invitation: P. F. Gaffney, Densen Carton Company; Saul Bernstein, attorney, representing about 20 corrugated manufacturers in the New York district; J. S. Barshay, attorney, 2 Lafayette street, New York City, representing a group of folding box manufacturers in the New York district.

"After a very thorough discussion, it is the recommendation of your special committee that Resolutions 5 and 14 be submitted to the Federal Trade Commission in the following form, i.e., in the same form in which they were presented to you originally by the special committee, namely,

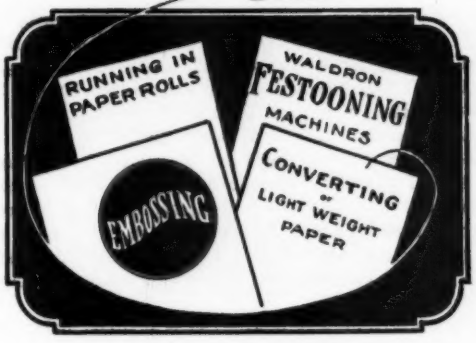
No. 5. Price Discrimination

"'Any discrimination in the price of paperboard or boxes between purchasers of the same class, not including discrimination

Dawn of the Great Future Market For The Paper Industry

Wall Paper, through compelling color effects and richly embossed surfaces, now wrests a gigantic market from the most energetic campaigns for painted walls. The future for box papers, utility wraps, linings and individual servers never looked brighter. BEAUTY—in everything made of paper—is the element that is building a new era for paper industry—just as it has already done [illegible] automobile trades. Are you preparing to [illegible] of this profitable market?

Theres Needed Information For You In These



Copies on Request!

"Converting of Light Weight Papers." Twenty page book on "Embossing". Illustrated Bulletin on "Mechanical Festooning". Instruction Sheet on "How a Paper Roll Should Be Run In".

All timely authoritative treatises on modern methods in Paper Converting, prepared by engineering specialists for the purpose of assisting the trade to secure additional business and insure profitable production.

Consult our engineering department for whatever information you desire on Paper Converting.

Since 1827

Waldron Quality Machines for

Embossing	Festooning
Printing	Polishing
Coating	Winding
Sizing	Slitting
Gumming	Reeling

WALDRON MACHINES

JOHN WALDRON CORPORATION

MAIN OFFICE AND WORKS, NEW BRUNSWICK, N. J.

SINCE 1827

208 West Washington Street
Chicago, Ill.

519 American Bank Bldg.
Portland, Ore.

30 East 42nd Street
New York City

New Birks Building
Montreal, P. Q.

in price on account of the difference in grade, quality or quantity of the product sold, or which makes only due allowance for difference in cost of selling and transportation, or discrimination in price in the same or different communities not made in good faith to meet competition, where the effect of such discrimination may be to substantially lessen competition or tend to create a monopoly, is an unfair trade practice. Provided, however, that nothing in this resolution shall be construed to prevent the publication and use of a special quantity price applicable to a definite quantity of goods which are placed in one order and at the option of the shipper are moved as one shipment.'

No. 14. Sales Below Cost

"'The selling of goods below cost, except to meet a price offered by a competitor, is condemned as unfair competition. Note:—Sales below cost if persistently made inevitably result in bankruptcy of the seller. If only occasionally made such sales may result in price discrimination in that an undercost price to one buyer is hoped to be offset by too high a price to another buyer. Sales below cost are sales which fail to take into account every item which should enter into the cost of the product.'

"Your committee strongly urged that Resolution 5 be submitted to the Federal Trade Commission in the form as read. It constitutes word for word a resolution already approved by the Federal Trade Commission for other industries and it is in fact a repetition of the Clayton Act, except for the proviso that is added. We feel reasonably certain that this resolution would be accepted by the Commission.

"The entire procedure may be considered as a continuing movement. If we fail to put in certain resolutions at this time, they may be brought up for consideration and presented at a later date. The Commission has already consented to hear us a second time and still further conferences may be arranged if there be a need. On the other hand, were we to load our vehicle too heavily with various propositions, we might overload it, thus causing a break-down of the whole subject.

"Perhaps few realize the amount of policing that will be required when the program becomes effective. It was proposed at the Chicago conference that the committee or bureau to be established by the industry be composed of members and non-members and that some budget be developed to be borne on a fair basis by every factor in the industry subscribing to or subject to these practices. We must not be over-anxious about securing the preventive measures we all want. It is for this reason that your committee feels it best to come to you with a less ambitious program on 'Price Discrimination' and 'Sales Below Cost.' The subject is open for your further consideration."

The above subject was discussed at considerable length, and the meeting voted to submit Resolutions 5 and 14 to the Commission for formal adoption.

Report of General Nominating Committee

In submitting the report of the general nominating committee, appointed to nominate a president for election at the meeting, J. P. Brunt said:

"I appreciate the privilege of being asked to be the spokesman for your nominating committee, not only because of the caliber of the members of the committee, but also because of the caliber of our nominee. We hope and we believe we are entering a reconstructive period in 1929 and we have nominated a man whom we hope you can all follow and assist.

"Your committee unanimously places in nomination for election to the presidency of the association during the coming year the name of John J. Brossard, of the Fort Wayne Corrugated Paper Company, Fort Wayne, Ind."

Upon formal motion by Mr. Gair, seconded by Mr. Schmidt and carried, the recommendation of the nominating committee was unanimously accepted and Mr. Brossard was duly elected president.

Retiring President Alford stated that he took great pleasure in announcing the election of Mr. Brossard, and in surrendering the gavel, he extended the best wishes of the retiring president to the newly elected president.

The announcement of Mr. Brossard's election was followed by enthusiastic applause, and in accepting the office he made the following statement:

"I can't help from feeling somewhat overwhelmed as this is an unexpected honor. I certainly appreciate the confidence you have placed in me. My only hope is that the new president and the new executive committee may perform somewhat nearly as well as has our past administration."

At the suggestion of Mr. Brunt, members rose and applauded as an expression for the good work performed by the retiring officers and in anticipation of a constructive administration by the newly elected officers.

Folding Box Group Meeting

The Folding Box Group meeting was held Wednesday morning, November 21, with Mr. H. H. Stonebarger, a member of the executive committee, presiding.

The following is an outline of the principal subjects considered at the meeting:

1. The Sales Promotion Committee's Report on "Extending the use of Folding Boxes."
2. Statistical-Accounting Subjects including the following:

   (a) *Uniform Rates of Depreciation*:

   An agreement has been reached with the U. S. Treasury Department in connection with uniform rates of depreciation for use by the folding box industry in filing tax returns. The rates are to be published at an early date so that they will be available for use in connection with the returns for the year 1928. The rates agreed upon will be accepted by the Treasury Department without question. The folding box industry is the first industry that has had a basis of depreciation rates accepted by the Treasury Department.

   (b) *Maps Showing Location of Folding Box Plants, Mills and Container Plants*:

   A series of maps have been prepared and mailed to members showing the location of folding box plants, mills and container plants.

   (c) *Statistics*:

   A complete discussion was had covering the subject of statistical reporting, and steps are to be taken to make this particular activity of greater value, if possible.
3. Invitation to Suit Box Manufacturers to Attend Folding Box Group Meeting, Chicago, January 23, 1929:

The Group elected to extend a cordial invitation to the manufacturers of paperboard suit boxes to attend the meeting to be held in Chicago on January 23, 1929.

4. Plans Outlined to Secure Better Attendance at Group Meetings:

The members adopted a plan calculated to arouse more interest and a better attendance at meetings. Members are to be urged to submit in advance of meetings, topics which they would like to have considered and these subjects will be placed on the program for discussion and consideration.

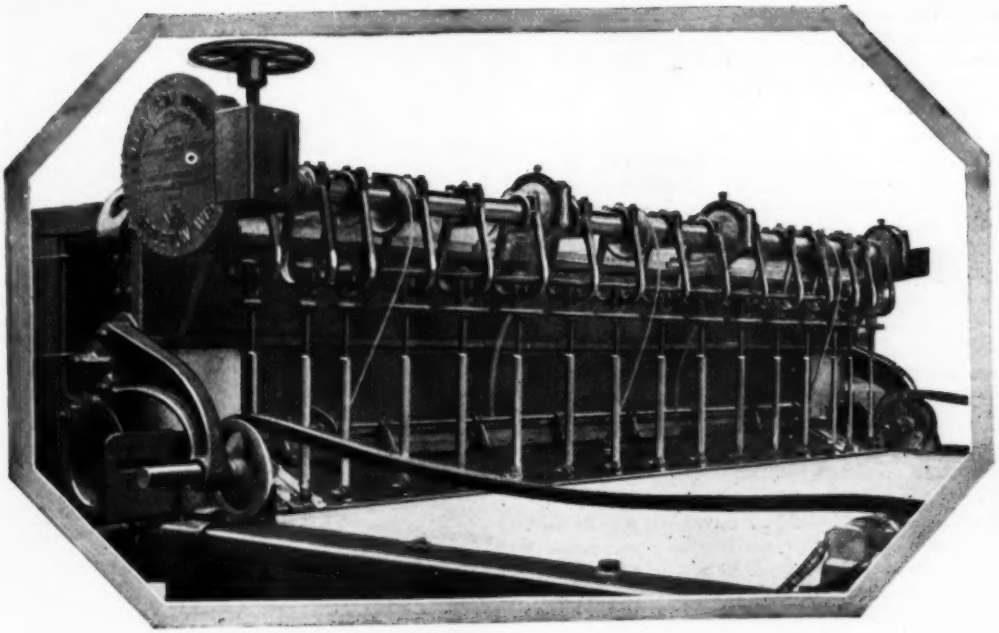
Paperboard Group Meeting

Members of the Paper Board Group met Wednesday afternoon, November 21, with Vice-President E. R. Hankins presiding.

Among the more important subjects considered at this meeting were the following:

1. Statistical-Accounting Subjects, including:
   (a) Announcement that Census of the paperboard industry will be taken by the U. S. Department of Commerce in 1929.
   (b) Maps Showing Location of Mills, Folding Box and Container Plants:

   Maps as above have been prepared and mailed to members.
   (c) Accounting Service provided by Association Staff.
   (d) Progress to date in connection with establishment of Uniform Rates of Depreciation for use in connection with income tax returns.



Its Production Savings are Established on 256 Installations-

The Voith Inlet has proven itself as equipment that will not only soon earn its initial cost, but is a necessary addition to enable mills to reach minimum production costs—and this without sacrificing the quality of paper.

Production savings are possible with the Voith Inlet operating on either the Straight Fourdrinier, Harper or Yankee machines—either with or without the Wentz No-Deckle Device.

The Voith Inlet is easy to install—any customary week-end shutdown is time enough—and easy to operate. When desired it can be equipped with the Wentz No-Deckle Device so that the operator can deckle-in while the machine is running.

The 256 installations throughout the country have established the fact that the Voith Inlet shows savings on such items as longer life for wires, fewer shutdowns by breaks, paper of uniform caliper, fewer lumps and foam spots—and better paper.

Our special booklet describes fully its operation—sent upon request. Write today.

Send for this Booklet

It contains valuable information on lowering operation costs and producing better paper.

VALLEY Equipment includes

Beaters: Holland and Niagara
Deckers: Single and Double
Agitator Equipment
Screens: Flat and Rotary
Pumps: Centrifugal and Stuff
Cylinder Paper Machines
Voith Stock Inlet
Laboratory Equipment
Stock Valves: 2 and 3 Way
Stock Consistency Regulators
Beater Rolls and Fittings
Digester Fittings of all Kinds

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: 350 Madison Avenue
Western Manufacturing & Sales Division, Smith & Valley Iron Works Co.
Portland, Oregon

(e) Statistical Charts and Summaries of Paperboard Manufacturing operations.

2. The Sales Promotion Committee's Report on Extending the Use of Paperboard and Paperboard Products.
3. Import Tariff Legislation:

A special committee was appointed to give consideration to import tariff legislation as affecting the paperboard industry. The personnel of the committee is as follows: Chairman, Henry D. Schmidt, Schmidt & Ault Paper Company, York, Pa.; F. A. Norton, Lawless Brothers Paper Mills, Inc., Rochester, N. Y.; Hugh Strange, John Strange Paper Company, Menasha, Wis.

4. Eliminating the Manufacture and Use of Inferior Container Board.

Container Group Meeting

The Container Group meeting was held Thursday morning, November 22, with Vice-President J. J. Brossard presiding.

General Manager's Report

General Manager Browder submitted a comprehensive report of subjects of interest to the group. In the report he reviewed the many changes made in the freight packing regulations during the past year, the effect of which has been to extend materially the fields in which corrugated and solid fiber containers may be used. An outline of the principal items contained in the report follows:

1. Traffic and Classification Matters; 2. Review of Classification Matters during 1928; 3. Bureau of Explosives Matters; 4. Relations with Federal Specifications Board; 5. Containers and Interior Packing Designed at Chicago Laboratory; 6. Inspection of Boxes at Members' Plants; 7. Inspection Service to Maintain the Quality of Corrugated and Solid Fiber Boxes.

Inspection Service

An item of unusual interest was a detailed report showing results of the inspection plan, inaugurated in June, 1928, for the purpose of maintaining the quality of corrugated and solid fiber boxes. Under the plan now in force, boxes are collected from box users, examined and tested, and the box user is furnished with a detailed report of the test. The presentation showed that the number of inferior boxes collected during the past two months was relatively small, indicating that the standard of quality of corrugated and solid fiber boxes has improved appreciably since the service was inaugurated. It was the sense of the meeting that this service be continued, at least until the next meeting. The views of the members regarding this activity were quite appropriately summarized by a prominent member, who said, "The fact that the corrugated and solid fiber container industry has the courage to police itself, is the very best sales argument that the industry could have."

Statistical-Accounting Subjects

The meeting approved a schedule of Uniform Depreciation Rates for use by the container industry and it is believed that these rates will be accepted by the U. S. Treasury Department for use in filing income tax returns.

Report was made that since January 1, 1928, the association staff has rendered accounting service at the plants of nine members of the container group and other members are now requesting this service.

Mention was made of the fact that a sales expense questionnaire was recently issued and a summary of responses has been mailed to the members who contributed their figures.

Sales Promotion Committee's Report

Chairman J. M. Macleod of the Sales Promotion Committee, introduced A. W. Luhrs, sales promotion representative, who reported with respect to the effort being made to increase the use of corrugated and solid fiber boxes.

Standardization Committee's Report

The report of the Standardization Committee was submitted by Chairman F. J. Kress. The report contained the committee's recommendation with respect to the following subjects:

(a) Certificate of Box Maker on Containers Manufactured from Double-faced Sheets; (b) Minimum Thickness of Facings in Corrugated Boxes; (c) Standard Test for Cloth Tape Used at Joint of Corrugated boxes.

New Members of Container Group

Vice-President Brossard's announcement that six additional companies had applied for membership in the Container Group, and that their applications would be submitted for approval at the general meeting of the association, was received with applause.

Next Meeting

The next meeting of the association will be held in Chicago on Wednesday, January 23, and Thursday, January 24, 1929.

Boston Paper Market Fairly Steady

BOSTON, Mass., December 10, 1928.—A fairly favorable situation prevails in the paper market here. Some of the dealers report a good volume of orders for fine grades of paper while others intimate that the demand is moderate. A similar condition exists in the kraft market. One of the dealers says that it appears as if the holiday trade would be very large, so that a substantial amount of paper will go into consumption.

The boxboard situation is an unfortunate one, "deplorable," to quote a dealer. It is stated that many of the mills have withdrawn from the market and decline to sell at the reduced figures. According to unofficial reports, only a certain percentage of the amount usually taken by box manufacturers was sold by the board manufacturers to box makers at the lower prices. "Shopping orders" particularly have been placed at lower prices, but "service orders" at the higher prices.

Information quoted from a bulletin of the National Paper Box Manufacturers Association has been published in these columns. The regular December bulletin of the association says:

"On November 20 boxboard prices, which had been fairly stable for the past twelve months, were cut by leading eastern mills from $40 per ton for chip and $42.50 per ton for news, to $30 and $32.50 per ton, respectively. These prices prevailed for several days, during which a considerable tonnage of board was booked.

"Prices at this writing are nominally $40 per ton with mills in seaboard cities booking business as low as $35. Private advices indicate that these low prices are temporary and that an attempt will be made to stabilize the board market at about $45 per ton."

The opinion prevails here that the former prices will be in effect after the first of the year, although some have expressed the opinion that they will not be in effect so soon. A box manufacturer notes that, within the last five years, board has been down to $27.50. The present cut in prices brings to mind of some of the box board dealers the "Parks pool" of 1909 when chip board sold in New York City for $17.50, sidewalk delivery.

The price of mixed paper has not been affected by the price situation in chip board and filled news board. The no. 1 grade remains at 55 to 60 cents a hundred pounds, f.o.b. Boston. The demand for waste paper generally is somewhat easier, but values are unchanged. Bagging, new and old domestic rags, and foreign rags, are quiet in the same position. Dealers say that with the approach of the holidays and the end of the year there is usually a lull. Manufacturers prefer not to increase their inventories but would rather have a smaller amount of stock on hand.

O. E. Larson Joins Emerson Mfg. Co.

O. E. Larson, for several years associated with the Hermann Manufacturing Company, of Lancaster, Ohio, has recently joined the organization of the Emerson Manufacturing Company, Lawrence, Mass., where he will be in charge of engineering and production designing for various types of machinery manufactured by the Emerson Manufacturing Company, as especially applied for use in pulp and paper mills. Mr. Larson has had wide experience in the engineering field, specializing in the requirements of pulp and paper mills, and his new connection affords him exceptional opportunities for broadening his activities.

A SOLUTION to your Felt Problems

As Appleton Felts and Jackets have helped other mills solve their felt problems, perhaps there is a solution to your felt problems with Appleton Felts and Jackets.

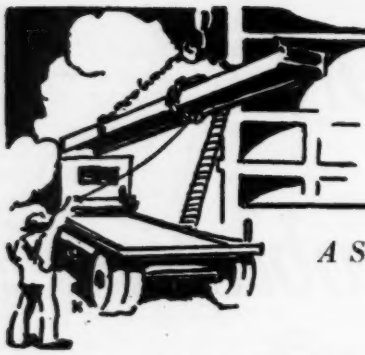
On the threshold of the 38th year in making felts and jackets, the Appleton trademark on the above tag (a reproduction of the tag attached to every felt) is the symbol of **quality** and **service**—and two outstanding reasons for the wide acceptance of Appleton Felts.

Behind this trademark are the cumulative experience of the past 37 years, a plant that actually controls its product by checking and rechecking all details of manufacture, an organization accustomed to making only quality products, and the reputation for making felts that are today the standard for quality and service.

Submit your felt problems to us. We'll gladly work with you to overcome any difficulties you may now have.

APPLETON WOOLEN MILLS
Appleton, Wisconsin

Appleton
Felts and Jackets



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Harriman, Tenn.—Officials of the Mead Pulp and Paper Company, Chillicothe, Ohio, have organized a new subsidiary under the name of the Harriman Company, to construct and operate a new mill at Harriman. Plans are being completed and it is expected to begin work on initial units early in January. Site has been purchased. The plant will consist of several buildings and is reported to cost in excess of $800,000, with equipment.

Woonsocket, R. I.—The American Paper Tube Company, Hazel street, has completed plans for construction of a new addition to its plant, to be used primarily as a process unit. It will be one-story, estimated to cost in excess of $45,000, with equipment. Bids will be taken at once on general contract and superstructure soon placed under way. W. F. Fontaine, 16 Norwich street, is architect, in charge.

Long Island City, N. Y.—Jaffe Brothers, 1165 48th street, Brooklyn, N. Y., paper products, have plans under way for proposed new factory and distributing plant at Hulst street and Foster avenue, Long Island city, recently referred to in these columns. It will be one-story, reported to cost close to $30,000, with equipment. It is understood that bids will be asked on general contract at an early date.

Detroit, Mich.—The Detroit Container Corporation, 280 South Harbaugh street, recently organized with a capital of 10,000 shares of stock, no par value, plans operation of local plant for the manufacture of paper boxes and other containers. The new company is headed by Ernest F. Lang, John D. Lynch and Andrew J. Maas.

Cloquet, Minn.—Plans are being consummated for a merger of paper, lumber and affiliated interests at Cloquet, headed by the Northwest Paper Company, with local mill for the production of book and writing papers. The consolidation will include the Northern Lumber Company, Cloquet Lumber Company, Duluth & Northeastern Railway Company, Johnson-Wentworth Company, local lumber operators, and the Northwest Paper Company, all to be operated in the future under the direction of the last noted company. The combined organization will produce news print, kraft, book, writing and other paper stocks, as well as lumber products, crating, etc. It is understood that the lumber branch of the consolidation will be active in the future in connection with pulpwood supply for the papermaking units of the organization.

Chicago, Ill.—The Jordan Paper Box Company, 341-43 North Crawford avenue, is said to be planning the early rebuilding of portion of plant destroyed by fire, December 3, with loss reported in excess of $20,000, with equipment. The company occupied part of a factory at location noted.

Baltimore, Md.—The Fred Wright Company, 217 North Calvert street, general contractor for the new additions to be built to the plant of the Chesapeake Paperboard Company, Key Highway and the Baltimore & Ohio Railroad, is awarding a number of sub-contracts for the project, on which work has been started. Masonry will be carried out by Gite & McCullough, 417 Broadway, Baltimore, and structural steel, reinforcing steel, steel sash, etc., will be furnished by Dietrich Brothers, 220 Pleasant street. The expansion will consist of two one-story units, 85x178 feet, and 86x116 feet, and will provide for large increase in capacity, estimated to cost approximately $100,000, with equipment. Karl A. Lefren, 171 Madison avenue, New York, is engineer.

Middletown, Ohio—The Gardner & Harvey Company, manufacturer of paper, paper boxes and kindred products, has completed plans for a new addition to its mill, for which superstructure will be placed under way at once. It will be one-story, located on Melbar street, near Tytus street, estimated to cost approximately $165,000, with machinery. A building permit has been issued. Plans were drawn by the Management, Engineering and Development Company, Dayton, Ohio, architect and engineer, which will supervise erection.

Spotswood, N. J.—The American Salpa Corporation, care of the Turner Construction Company, Graybar Building, New York, has awarded a general contract to the last noted company for a new plant at East Spotswood, where tract of 60 acres of land was recently acquired. The company was recently organized and headquarters have not as yet been announced. It will manufacture a material similar to paper and used for like purposes, under a special process. The new plant, it is understood, will be the first mill of its kind in the country. It will consist of two main brick, steel and concrete units, designed to give employment to close to 450 persons. The initial project is reported to cost close to $500,000, with plant floor space aggregating 280,000 square feet. Completion of the mill is scheduled in June, and manufacture will be placed under way at once.

Hoquiam, Wash.—The Grays Harbor Pulp and Paper Company is developing increased capacity at its new local sulphite pulp mill, which began operations last month, and excellent efficiency is said to be evidenced. Present output is in excess of about 100 tons per day, and will be stepped up to 150 tons, the rating of the mill, in the near future. The company is an interest of the Zellerbach Paper Company, San Francisco, Cal., J. D. Zellerbach, president.

Coatesville, Pa.—The plant and property of the Ajax Paper Mill will be offered at a public sale on December 27, in accordance with order issued by the United States District Court at Philadelphia, Pa. The plant has been in receivership for some time past, and has been idle, under receivership proceedings, for close to a year.

Parkersburg, W. Va.—The Parkersburg Corrugated Box Company, Depot street, has begun the construction of its proposed new mill addition, recently announced in these columns, and will push the project to completion. The unit will be one-story, 50x300 feet, and is reported to cost in excess of $100,000, with equipment.

Dayton, Ohio—The Atna Paper Company, Cincinnati and Columbia streets, N. W., has completed plans for construction of a one-story addition to plant, and general contract has been let to the I. F. Weber Company, Dayton. It is estimated to cost about $23,000, with equipment. Work will be placed in progress at once.

Hoboken, N. J.—The Bestmade Paper Box Company, care of A. D. Levenson, 95 River street, Hoboken, recently organized with capital of $50,000, is said to be planning the early operation

The Word of the Law

Once there was no law except the revelation of religion. Once there was no legal decision except that of priest or chieftain. But with the development of a social consciousness there has come the necessity of accumulating precedent, codifying opinion, preserving the voice of equity.

The labored scroll, its parchment background a tedious thing to produce and to indite upon, served the records of justice for many a generation, many a century. Its coiled surface held sacred—and often secret—those charters of human freedom that are oft written in the decision of minor questions. From these pebbles of rightness dropped into a sea of human adjustments came those ripples that have swelled into the waves of modern law.

Today the factors, the testimonies, the questions and exceptions of every trivial case are put on paper, duplicated with carbon, machine or printing press and preserved for the social benefit of the race. For paper without limit fosters justice without limitations.

Hammermill Paper Company

ERIE, PENNSYLVANIA

of a new local factory for the manufacture of paper boxes and containers of various kinds. The new organization is headed by Louis Oppenburg, 4205 Fifteenth avenue, Brooklyn, and Abraham Shur, 333 Frank street, Roselle, N. J.

Harrisburg, Pa.—The Harrisburg Paper Box Company, 1550-52 Vernon street, is running on a capacity schedule for production of paper boxes and containers for the holiday trade and is giving employment to maximum working force on a 10-hour day. It is proposed to maintain this output for an indefinite period.

Spokane, Wash.—The Inland Empire Paper Company has begun work on proposed new addition to its plant at Milwood, for storage and distributing service, to be two-story, 60x140 feet, estimated to cost close to $40,000, including facilities. Contract was recently let to the Austin Company, Dexter-Horton Building, Seattle, Wash.

Port Mellon, B. C.—The Vancouver Craft Company, Vancouver, B. C., is arranging details for its proposed new pulp and paper mill at Port Mellon, about 20 miles from Vancouver, for which work is starting. The plans provide for the construction of a one-story lumber mill to be equipped for initial output of 200,000 feet per day, grinding mill for handling the pulpwood, one-story sulphite bleaching plant, and main mill with initial capacity of 100 tons per day. The new plant will be used for the production of kraft paper, and is estimated to cost close to $1,800,000, with machinery.

Salem, Ore.—The Western Paper Converting Company is said to have plans maturing for the construction of a proposed new mill, one-story, 100x240 feet, to cost approximately $100,000, with equipment, and will proceed with superstructure at an early date. A list of equipment to be installed is being arranged.

New Companies, Etc.

Lynn, Mass.—The Superior Wall Paper Company has been incorporated with capital of $25,000, to deal in wall paper, etc. Frank Feldman is president; and Elizabeth M. Carlton, 71 Tracy avenue, Lynn, treasurer and representative.

New York, N. Y.—The Automatic Syrup and Cup Company has been organized with capital of 500 shares of stock, no par value, to manufacture, among other products, drinking cups and kindred paper and fiber specialties. The incorporators are J. R. Scharff, Thomas A. McMahon and M. A. Kane, 671 Nasby Place,

Visit District of Columbia Mill

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 10, 1928.—The District of Columbia Paper Manufacturing Company entertained seven salesmen of the M. & F. Schlosser Paper Corporation at the mill, Friday, November 30. The party went through the mill during the afternoon and was served dinner at the mill that evening.

Short talks were given by D. A. Smith, vice president and general manager; Herman Harrigan, assistant general manager; W. W. Langtry, sales manager, and R. N. Finlay, advertising manager. G. L. Nicolson, president of the company, acted as toastmaster.

On Saturday they revisited the mill a short time, after which they were taken on a tour and shown the points of interest in Washington.

Messrs. Miles, Mantz, Wintzer, Kuett, Nelson, Baker, and Arthur Schlosser of the M. & F. Schlosser Paper Corporation were included in the party.

J. O. Ross Moves Portland Branch

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 7, 1928.—The J. O. Ross Engineering Corporation has moved its offices from 303 Lumbermans Building to 519 American Bank Building in this city. E. G. Drew is in charge of the Pacific office as western representative of the J. O. Ross Engineering Corporation, the John Waldron Corporation and the Nichols Products Corporation.

Menasha Safety School Celebrates

One of the most successful safety schools ever conducted in the Fox River Valley drew to a close with a banquet last week. It was the one conducted at Menasha, Wis., where the attendance at some of the weekly evening sessions has been as many as 500. There were 400 present at the banquet and certificates were presented to 350 persons who had attended not less than five of the sessions.

George D. Barnes, secretary of the Gilbert Paper Company, was chairman of the dinner and in a preliminary address summarized the value of the school. He said that only two per cent of the 75,000 accidents in the United States every year are unavoidable, 88 per cent are due to violations of safety rules, and 10 per cent are due to physical impairment.

Mr. Barnes pictured the truth of the liability insurance aspect, saying that it is fallacy to believe that the insurance company pays the bill and that is the end of the matter. Industries pay insurance rates according to their accident experience, he said, and these expenses are added to operating costs. High rates mean higher cost of manufacture, and higher prices to the consumer.

R. M. Kuehl, chief engineer of the Wisconsin Industrial Commission, was a guest at the banquet and expressed his appreciation of the school and its accomplishments. The principal address was given by Prof. W. C. Hewitt, of the State Teachers College at Oshkosh, Wis. He brought home the simple philosophy of safety by presenting his thoughts in a humorous vein.

Certificates were presented by S. E. Crockett, director of the vocational school, who had charge of the safety school arrangements. The Menasha Products Company employees received 92; Menasha Wooden Ware Corporation 59; Gilbert Paper Company 52; Kimberly-Clark Corporation 26; George Banta Publishing Company 13; Bergstrom Paper Company 8; Wisconsin Tissue Mills 5, and Whitmore Machine and Foundry Company 5.

Jackson Paper Co. Makes Good Record

JACKSON, Miss., December 10, 1928.—Jackson was honored recently by having as visitors Sidney L. Willson, president of the American Writing Paper Company, Russell S. Madden, sales manager, and M. S. Stetson, southern representative, all of Holyoke, Mass., who were guests of honor at a luncheon at the Edwards Hotel given by H. T. Newell, president of the Jackson Paper Company, and his organization.

The visit of Mr. Willson and his associates to Jackson was inspired by the splendid sales record of the Jackson Paper Company during the past year which for its first year as an "Eagle A" service station has led every other national service station in proportion to allotted territory.

Mayor Walter A. Scott most cordially welcomed the guests of honor to Jackson, impressing them with the rapid growth not only of the Capital City but the entire state of Mississippi.

J. W. Tucker, Sr., president of the Tucker Printing Company, extended a welcome in behalf of the printing trade of the city of which every establishment was represented. Paul Chambers extended a welcome in behalf of the Chamber of Commerce which was followed by T. M. Hederman, of the *Clarion-Ledger*, and Walker Wood, secretary of state.

The meeting was presided over by H. T. Newell.

Messrs. Willson, Madden and Stetson expressed deep appreciation for the courtesy and consideration shown them in Jackson, stating that in no city in which they had visited during their tour of inspection of the South had they been more cordially received than in Jackson, which they pronounced the most progressive city of its size they had visited.

R. F. Englehardt Resigns

THOMSON, N. Y., December 10, 1928.—Robert F. Englehardt has resigned his position as general superintendent of the plant of the United Paperboard Company. He had been in the employ of the firm for a long term of years.

Wherever paper is made, new users, as well as mills which always have used Kenwood Felts, are enthusiastic in their endorsement of

KENWOOD TANNED FELTS

Kenwood patented Tanning Processes HAVE REVOLUTIONIZED FELT PERFORMANCE under all running conditions and for all kinds of Paper, Board and Pulp.

F. C. HUYCK & SONS

KENWOOD MILLS, ALBANY, NEW YORK
KENWOOD MILLS LTD., ARNPRIOR, ONTARIO

New York Trade Jottings

Maurice Hoopes, president of Finch, Pruyn & Co., Inc., spent a few days in New York last week.

* * *

George W. Sisson, Jr., president of the Racquette Paper Company, was a New York visitor last week.

* * *

Frank J. D. Barnjum, of Annapolis, Nova Scotia, was in New York for a few days last week en route to the Sunny South.

* * *

H. P. Gould, president and treasurer of the Gould Paper Company, and his wife, paid a brief visit to New York last week.

* * *

J. A. C. Kavanagh, Statistician of the American Paper and Pulp Association, has returned from Washington after a conference with the heads of the Bureau of Standards, Bureau of Foreign and Domestic Commerce and Bureau of the Census.

* * *

Dr. J. L. A. Macdonald, chief chemist of Tullis, Russel & Co., Ltd., paper manufacturers, Auchmuty Mill, Markinch, Fifeshire, Scotland, was a visitor to the Technical Association's offices this week. Mr. Macdonald is investigating the methods used in American mills to evaluate pulp.

* * *

The International Paper Company has declared the regular quarterly dividends of $1.75 on the 7 per cent preferred and $1.50 on the 6 per cent preferred, both payable January 15 to stock record December 26. The International Paper and Power Company has declared initial quarterly dividends of $1.75 on 7 per cent preferred and $1.50 on 6 per cent preferred, both payable January 15 to stock of record December 26.

* * *

J. E. Hayes, research director of the Crowell Publishing Company, was the principal speaker at the regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry, held at the Canadian Club last Monday. His talk on the growth of periodical publishing was greatly appreciated. The speaker scheduled for next Monday's meeting is L. E. McGivena, publicity manager of the New York *Daily News*, who will take as his subject "The Future of the Tabloid." No meetings will be held on December 24 or 31, due to the holidays.

* * *

Hearing will be held in New York on January 16, according to announcement just made by the Interstate Commerce Commission in its investigation No. 21,095 of rates on news print paper to points in Official and Southern classification territories, and related formal complaints. The Commission issued an order enlarging the scope of this investigation to include all rates on news print paper between points in Southern classification territory and it has also consolidated with the proceeding for hearing the formal complaints in cases Nos. 21,042, 21,126 and 21,534. The hearing will be held before Chairman Campbell and Attorney Examiner Howell, of the Commission.

* * *

Closing last Saturday night of the Seventh National Exposition of Power and Mechanical Engineering in the Grand Central Palace ended what was credited with being the largest industrial exhibition of the year. In the week a record attendance of more than 135,000 persons was recorded, of whom an exceptional number were from other countries. Most numerous among foreign visitors were those from Canada, with South American countries second, Germany third and Japan fourth. More than 100 registered from Japan. Practically all the civilized countries of the world were said to have been represented. The exposition next year will be held from December 2 to 7 in the Grand Central Palace. The exposition this year occupied four floors and contained the booths of 551 exhibitors, while the first of the shows staged seven years ago occupied but one floor and had only a score of exhibitors.

Pope Patent Held Valid

A press dispatch in the *News* of Bangor, Me., states that Cable advices from London state that the British Privy Council has sustained the validity of the Pope Canadian patent No. 192,726 covering automatic means for threading paper through calenders. The patent is that of Pope Appliance Corp., controlled by Great Northern Paper Company.

"The suit was brought originally in the Exchequer Court of Canada which decided that the patent was invalid due to its similarity to prior patents and the decision was sustained by the Supreme Court of Canada. The Judicial Committee of the Privy Council in London, to which appeal was carried, has just decided to advise His Majesty to allow the appeal and direct the Supreme Court of Canada to sustain the patent and grant an injunction and accounting. The case is important in that the Pope company has licensed almost all manufacturers of newspaper under the patent.

"It is expected that the patent company will collect from some of the leading paper manufacturers, damages running into the hundreds of thousands and that further use of the process will yield royalties."

Preliminary Tariff Conference

The Committee on Ways and Means of the House of Representatives announces that it will hold hearings at Washington, D. C., February 13 and 14, on the tariff revision of papers and books. A preliminary tariff conference will be held at the Union League Club, New York, Tuesday afternoon, December 18, to which will be invited the chairmen of the tariff committees in each of the various branches of the industry, and the presidents and secretaries of associations affiliated with and allied to the American Paper and Pulp Association. These will confer with the association's General Tariff Committee and the representatives of the Import Committee in order that those responsible for the tariff work of the industry may have a clear understanding of what the situation is and what is necessary to insure adequate tariff protection for all branches of the industry when the new tariff bill is being written.

American Foresters to Meet in New York

The annual meeting of the Society of American Foresters is to be held at Columbia University, New York, on December 28 and 29. The annual dinner of the society is to be held at 6.30 p. m. on Saturday, December 29, at Keen's Chop House, 107 West 44th street. A private dining room occupying a separate floor has been reserved for the event. Keen's Chop House is one of the most interesting eating places in the city and is well worth visiting. R. S. Kellogg is the local member of the program committee.

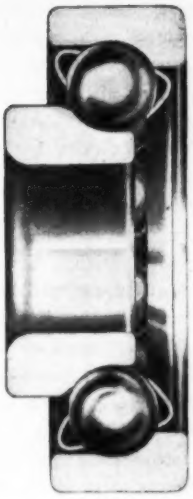
Charles Barton Heads Paper Technologist

KALAMAZOO, Mich., December 10, 1928.—Charles Barton, of the Michigan Paper Company, Plainwell, has been elected president of the Paper Technologists Club to succeed Ivar Lundbeck, who has resigned from the Lee Paper Company to go to Wisconsin and accept a technical position with a mill in that state.

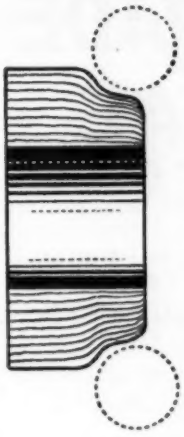
Globe To Represent Valley Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 10, 1928.—The Globe Paper Company has taken over the New England agency for the Valley Paper Company, of Holyoke, Mass.



Half-section of New Departure Ball Bearing showing the contact between the balls and raceways.



Sketch of inner race after upset forging process. Note direction of fibre flow. Actual specimen does not show flow sufficiently clear to be properly reproduced.

"Control of Fibre"

How it Builds Endurance in New Departures

THE exceptional endurance of New Departure Ball Bearings is explained in part by the control of the unseen in steel.

One of these hidden elements is the direction of the fibre in the steel. Where this is kept *parallel* to those surfaces subjected to greater loads, the endurance life is found to be greater than where the load is taken on "end grain" or fibre ends.

By producing bearings by modern upset forging processes, it is possible to control the direction of fibre in the finished forging. The subsequent annealing process relieves any internal strains set up in the steel by forging and the final heat treatment carried out in automatic electric furnaces produces the fine grain essential to the long life of bearings, but neither of these treatments alters the direction of the fibre.

Add to this superiority over other anti-friction bearings the use of a special electric furnace high carbon chrome alloy steel—the most uniformly enduring bearing metal known, the exquisite precision of every part and a 250 percent inspection system—and you have some of the secrets of the remarkable endurance found in every New Departure Ball Bearing.

New Departure Ball Bearings

The New Departure Manufacturing Co.
Bristol, Connecticut
Chicago · Detroit · San Francisco

926

PAPER TRADE JOURNAL
ESTABLISHED 1872

10 East 39th St., New York

Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Reginald Trautschold, M. E.
Power Engineering Consultant

Member A. B. C. Audit Bureau of Circulations

Vol. LXXXVII New York, December 13, 1928 No. 24

HIGHLY ENCOURAGING OUTLOOK

There is ample evidence to support the expectations of continued prosperity, the Guaranty Trust Company believes, after a survey of general business conditions it has just conducted. This evidence is not found in the mere fact of great industrial activity; for such a condition, while it certainly implies a large volume of aggregate purchasing power, may only be contributing to an unsound position in commodity markets, if the purchasing power is flowing into the wrong channels. The significant fact is that the high wage scales and the widely distributed income of the last few years apparently continue to operate as strongly as ever, so that active industrial operations are balanced by a ready movement of goods into the hands of consumers. The situation has been improved this year by further agricultural recovery, by a stronger position in certain industries that have been facing special difficulties, by a decline in unemployment, and by a continuance of economic progress in foreign countries.

There remain a few factors that are frequently mentioned as possible sources of disturbance. The situation cannot be considered perfectly balanced as long as such important industries as coal, textiles, shipping, petroleum, and others are seriously embarrassed. There is still room for great improvement in agriculture. The swift mechanical and industrial progress of recent years has necessitated readjustments which are still under way, and which entail stagnation in some lines and severe competition in many more.

It must be admitted that the change in the money situation has introduced an additional element of uncertainty. While there is little danger that the country's credit requirements will approach the limit of our financial resources in the near future, it must be remembered that a large volume of resources is still being held in reserve against future demands from abroad, which our financial leaders have neither the power nor the right to oppose. In the meantime, the trend of events in the security markets, dependent as these are on credit conditions and on delicate psychological factors, has certainly not increased the ability of the price structure to withstand possible shocks in the future.

These, however, are merely the dull spots in a generally bright outlook. Some irregularities must be expected to appear in such an innumerable array of factors as is involved in modern economic life, particularly at a time when the world is still experiencing the unsettling effects of the greatest economic and political upheaval in its history. The significant fact at present is not that such weaknesses exist, but that they are so few and apparently so powerless to check the onward march of trade.

The approach of the holiday season finds business in an exceptionally favorable position to take advantage of the seasonal stimulation of activity. Several of the country's most important industrial and commercial lines will achieve new high records for the year. There has been no general decline in wage levels, and the employment situation is much better than it was a year ago. Moreover, it appears that corporate earnings in general are considerably larger than last year. This conclusion is certainly indicated by the reports of large companies published in recent weeks.

Seldom have reports from the various industries and from the different parts of the country been so nearly unanimous in pointing to a high and advancing level of activity. Railway freight car loadings, bank debits to individual accounts, factory employment and payrolls, sales by retail establishments, foreign trade values, and basic industrial output combine to indicate not only that the current volume of business is larger than that of a year ago, but that it is increasing, whereas at this time last year it was decreasing.

TAX RELIEF FOR TIMBERLANDS

Tax relief for timberlands, extension of public forest ownership, and fire protection were important subjects of State legislative action during the last fiscal year, it is pointed out by the Forest Service, United States Department of Agriculture, in a review of the progress made in state forestry legislation during the period.

Tax relief is being given serious consideration in a number of states, as the heavy annual taxation of cut-over lands is detrimental to the spread of private forest management. Notable among the forest tax laws was that passed last year by Wisconsin, says the Forest Service. This was the first state to recognize the principle of financial assistance to the local taxing unit during the period of exemption or until returns from a yield tax begin to come in. A tax on cut-over land of 10 cents an acre is to be matched by a like payment from the state, the latter to be eventually compensated through a yield tax of 10 per cent of the value of the forest products when harvested.

Legislation was enacted in several states looking to enlarged public ownership and administration. In New York, which already has two million acres of state "forest preserves," the legislature created a temporary commission to investigate the subject of reforestation generally, to gather data on lands not suitable for agriculture which might be used for forest, and to report on the best means of promoting and financing the work. New York also authorized villages to acquire and use lands for forestry purposes, and authorized the state conservation department to establish and manage new state parks and parkways in the forest preserve and certain other counties, and to acquire land for them as appropriations for purchases are made.

Wisconsin changed its single-headed conservation commission to one of six members, with power to employ a conservation director;

revised and expanded the commission's powers and duties for the protection, development and use of the forests; and increased from 100,000 to 500,000 acres the authorization for Federal land acquisition for National Forests, the general boundaries to be subject to approval by the county boards. Porto Rico also authorized the United States to acquire land for the extension of its national forest.

Alabama passed a measure looking to the discovery by the state commission of forestry of all lands to which the state, its institutions, or departments, are entitled, but which have not been received, and to the classification of all lands of the state or its townships from the standpoint both of their present use and ot that for which they are chiefly valuable. State lands not being utilized for the immediate purposes of the individual institutions or departments, and all state parks, are placed under the jurisdiction of the commission, which is required to protect and recommend policies for them, may recommend exchanges of scattered tracts to consolidate ownership, and must determine and list with the auditor all state unused lands which are best suited for forest culture. Thereafter at the direction of the governor lands so listed are to be administered by the commission as either state forests or state parks.

Somewhat similar legislation in West Virginia created a state forest and parks commission to investigate lands held by the state, including lands forfeited through nonpayment of taxes; and to determine their availability for state forests or parks. Kentucky, in anticipation of Federal purchases within that state for national forest purposes, provided that money accruing from national forests shall be apportioned to the several counties in proportion to the national forest area in each, for public schools and roads.

Tulip Cup Corp. Gets Decision

The Chief Justice of the United States Supreme Court of the United States on November 26 announced the following order of the court:

"500—Ideal Cup Corporation, petition, versus Tulip Cup Corporation, and the United States Machine Manufacture Company,—petition for writ of cert. to the Second Circuit Court of Appeals denied."

It will be remembered that the Tulip Cup Corporation entered suit against the Ideal Cup Corporation for alleged infringement of its Tulip Cup patent rights, and the district Court for the Eastern District of New York, trying the case, rendered decision unfavorable to the Tulip Cup Corporation.

The Tulip Cup Corporation then appealed to the United States Circuit Court of Appeals, and in that court by unanimous opinion of the judges, the Tulip Cup patent was held both valid and infringed, thus reversing the decree of the lower court.

The United States Supreme Court having refused to review the case, apparently disposes of the subject for all time in favor of the Tulip Cup Corporation.

Norwegian Ground Wood Market Dull

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 12, 1928.—The Norwegian ground wood market was rather dull during the month of October according to a report from Consul C. P. Kuykendall, at Oslo, which further states, however, that certain orders have been received for the balance of the current year and for 1929 delivery. The demand for chemical pulp was somewhat brisker, frequent sales in both bleached and unbleached pulps were noted.

Port Edward Mill Made Over

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., December 10, 1928.—The last machine unit in the new plant of the International Paper Company was started last week and the whole plant is now in full operation, making kraft and other high grades of paper. The plant replaces the old news print mill of the company and has been under construction for the past two years. Early in 1927 directors of the company decided that manufacturing news print in the Fort Edward plant was a losing proposition. The many natural advantages offered by Canada convinced the company that it was wasting efforts in attempting to operate the plant at a profit. Consequently it was decided to suspend operations.

The announcement cast a gloom over the village but the dark clouds were scattered soon after with an announcement from the New York office of the company to the effect that the organization was to spend a quarter of a million dollars in converting the old mill into a modern bond paper mill. In April, 1927, an entire train of equipment of the Domil Construction Company, a subsidiary of the International, was sidetracked in the yards of the mill. One hundred men were employed at the start and with most of the machinery in the plant shut down the employees were given work with the Domil Company. Soon another large group of idle employees was added until over four hundred men were being employed in remodeling the mill, while about two hundred hands continued at work in the plant.

It was estimated when the work started that one year would be consumed in making over the old mill and its equipment. At the end of that period a wonderful transformation had taken place in the old mill yard. The old buildings which were to be no longer used were razed and new buildings and modern equipment were everywhere in evidence.

One by one the machines converted from news print to bond machines were completed and put in operation. This week the last machine in the mill was turned over. There are now six bond and one wrapper machines in operation in the local mill and it is understood that there are ample orders on hand to keep all machines in continuous operation. During the past nineteen months of the making over of the mill members of the Fort Edward Merchants' Association have enjoyed an excellent business and they are now handling one of the best holiday trades ever experienced. With its railroad facilities on the direct line of the Delaware and Hudson between New York and Montreal and the terminal docks of the barge canal inside the village limits the town now has all the necessary facilities for handling the products needed for the successful operation of the plant.

Bootleg Ale Discovered by Paper Men

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., December 10, 1928.—A freight car loaded with 7,800 quarts of Canadian ale packed in barrels was seized this week at Unionville, near here, by customs officials from Ogdensburg. The car was consigned to the Racquette River Paper Company and the ale was discovered by employees of the company who opened the car, according to customs men. Company officials reported the presence of the ale to the customs authorities. There were 120 barrels containing 7,200 quart bottles and 10 barrels containing 1,200 pint bottles. Customs officials said they had been unable to learn the name of the shipper or the point from which the car had been shipped.

Corinth Mill Busy

[FROM OUR REGULAR CORRESPONDENT]

CORINTH, N. Y., December 10, 1928.—Two paper machines in the local plant of the International Paper Company are now specializing on wall paper production and the finishing room of the mill is running night and day with a large force being employed in loading the paper into cars for shipment. All ten paper machines are turning out approximately 300 tons of news print daily.

There is no substitute for experience

MATHIESON Basic Chemicals

CAUSTIC SODA
LIQUID CHLORINE
BICARBONATE OF SODA
MODIFIED VIRGINIA SODA
SODA ASH
BLEACHING POWDER
ANHYDROUS AMMONIA
AQUA AMMONIA

Warehouse stocks
at all distributing centers

...when you build a new addition to your plant

WHEN the problem of enlarging your plant comes up—when you consider the question of new equipment, new processes, and new buildings in which to house them—you make sure to secure the services of the most experienced men available. In helping you solve such problems of importance there is no substitute for experience.

Likewise, in placing the contract for your Liquid Chlorine requirements, there is no substitute for valuable experience. The manufacture and distribution of Liquid Chlorine demand elaborate equipment of the most modern type. They require the services of technical men with years of wide experience. They demand the full cooperation of an organization whose broad experience is unchallenged and whose facilities for serving Chlorine purchasers are nation-wide.

Mathieson's experience in serving leading industrial users of Liquid Chlorine, month after month, year after year, is your best guarantee of satisfactory service. Consult us now concerning your Chlorine requirements for 1929.

The MATHIESON ALKALI WORKS (Inc.)

250 PARK AVENUE · NEW YORK CITY

PHILADELPHIA . CHICAGO . PROVIDENCE . CHARLOTTE . CINCINNATI

DEAL DIRECT WITH THE MANUFACTURER

WORKS: NIAGARA FALLS, N.Y. SALTVILLE, VA. · NEWARK, N.Y.

Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

Review of Recent Papers on Lignin

By Clarence J. West, Chairman, TAPPI Committee on Abstracts and Bibliography.

One of the greatest difficulties encountered in lignin chemistry has been the impossibility hitherto of isolating the native lignin in unchanged form from the plant-cell membrane. The method most used at present is based on the destruction of the saccharifiable constituents of the cell wall with highly concentrated hydrochloric acid. The acid treatment must not be continued too long, to avoid alteration of the lignin, and on the other hand it must not be too short, as the physical and chemical union between the lignin and carbohydrates may in part not be destroyed and the carbohydrates not be completely converted into water-soluble forms.

L. Kalb and Th. Lieser (*Berichte* 61, 1007-1022 (1928)) have studied the influence of time, temperature and concentration of the hydrochloric acid on the purity and yield of the lignin. A prerequisite was a more thorough and qualitative knowledge of the carbohydrates remaining attached to lignin obtained from wood insufficiently treated with hydrochloric acid. For the determination of the carbohydrate content of such preparations the usual indirect hydrolitic method (renewed treatment with concentrated acid and determination of the sugar in the hydrolyzate by the Betrand method) gives quite consistent results if the hydrolysis is sufficiently long and always carried out under the same conditions, but the absolute values obtained are, for various reasons, not without objection (the formation of the sugars may be accompanied by their decomposition under the influence of the acid, the pentoses always present are calculated as hexoses, and possibly the lignin itself may yield reducing substances such as formaldehyde or sugars). Reliable results were to be expected, therefore, only from methods which permit of isolating the carbohydrates in substance. By the Schmidt chlorine dioxide method the lignin substance in the cell membrane is oxidized and rendered soluble in sodium bisulphite, acetone or alcohol, while the carbohydrates remain unchanged; treatment of the products with sodium bisulphite leaves undissolved the complex of cellulose, galactose-free hemicelluloses and polymeric acids designated as "skeletal substance," while with acetone are obtained all of the carbohydrates (in addition to the "skeletal substance," the so-called hemicelluloses of the incrustations, which contain galactose).

The two methods, together with a third described below, were applied to lignin preparations and the carbohydrates thus obtained were characterized by hydrolysis and fermentation. The chlorine dioxide-sodium bisulphite products were about 67 per cent fermentable by both *Saccharomyces cerevisiae* and *Schizosaccharomyces pombe* and were, therefore, free of galactose. Fermentation of the chlorine dioxide-acetone products with *S. cerevisiae* indicated the presence of at least as much pure hexosan as was found of crude polysaccharides in the same preparations by the sodium bisulphite method. Whether this is due to the presence of hemicelluloses of the incrustations could not be determined because no fermentation with *S. pombe* was carried out, but in an earlier investigation (Hannemann, Dissertation, München, 1922) the carbohydrates (about 8 per cent) of a similar lignin preparation had been hydrolyzed off by renewed treatment with concentrated hydrochloric acid and galactose had been qualitatively identified, along with glucose, fructose, mannose and xylose. The hemicelluloses of the incrustations are possibly not alone responsible for the larger quantity of carbohydrates found by the acetone method; it may be that parts of the skeletal substance, hydrolyzed by the concentrated hydrochloric acid to dextrin-like products, become soluble in sodium bisulphite and therefore are missed in that process; in lignin preparations containing only very little carbohydrates, the latter can be isolated comparatively less readily than when large quantities are present and it can hardly be assumed that as hydrolysis proceeds the hemicelluloses of the incrustations would accumulate in the last carbohydrate residues remaining attached to the lignin.

Carbohydrate Composition

The composition of the carbohydrates in lignin preparations and the ability to separate them in the form of insoluble polysaccharides permits of concluding that they consist of residues of the saccharifiable wood constituent, with cellulose predominating, which have escaped the disintegrating action of the concentrated hydrochloric acid. This view was confirmed by isolating the carbohydrates in an entirely different way without destroying the lignin substance, namely, by extraction with cupric oxide-ammonia; from the filtered extract they are precipitated in most part (contaminated with some lignin) by acids and hydrolysis and selective fermentation shows that they are qualitative and approximately quantitative the same as those obtained by the chlorine dioxide-sodium bisulphite process. The extraction with copper oxide-ammonia affords a practical method for preparing lignin free of carbohydrates. It is improbable that the lignin is hurt by such a treatment. No absorption of nitrogen could be detected and there is no decrease in the methoxyl content (as is usually the case on oxidation of lignin) but an increase; thus, in one preparation the methoxyl content rose from 12.2 to 15.4 per cent, while the carbohydrate content decreased from 19.5 to 0.23 per cent. Furthermore, the extracted lignin, like the normal product, can readily be further methylated until it contains about 30 per cent methoxyl.

This latter fact further indicates that hydrochloric acid lignin is a definite product closely related to native lignin and not a condensation product of a hypothetical purer lignin with carbohydrate.

For the main experiments the chlorine dioxide-sodium bisulphite method was used because, although it does not yield the carbohydrates as completely as the other methods, it does yield them rapidly and readily in the form of pure, colorless, directly weighable polysaccharides. The values for the carbohydrate content thus obtained are always somewhat lower than those obtained by hydrolyzing 48 hours at 15 deg. with 30 parts of hydrochloric acid (density 1.21); the values obtained on various preparations by the two methods, respectively, were as follows: 24.8, 21.9; 24.0, 19.5; 10.0, 9.2; 9.0, 8.5; 3.8, 1.7; 3.5, 1.6; 0.60, 0.46; 0.63, 0.17.

Systematic experiments were then carried out on pine wood to determine the mildest conditions of hydrochloric acid treatment under which a practically carbohydrate-free product can be obtained, the wood being first treated four hours with concentrated hydrochloric acid to dissolve the cellulose and liberate the lignin ("chief hydrolysis") and then 18 hours with more dilute acid to break down the polysaccharides just to the point where smooth filtration becomes possible ("after hydrolysis"). At room temperature (17-20 degrees) an acid of at least density 1.205 must be used; at lower temperatures products containing carbohydrates are obtained and at —10 deg. this is true even with an acid of density 1.21, but such an acid can be used at 1 deg. The "chief hydrolysis" is complete in two hours. The conditions prescribed by Willstätter and Kalb (hydrochloric acid of density 1.21 at 15 deg.) therefore gives a lignin practically free of carbohydrates. The yield of pure lignin (crude lignin minus carbohydrate content) is in all cases around 26-27 per cent of the wood, *i.e.*, the lignin content does not increase during the treatment with hydrochloric acid, a fact which speaks against the assumption of a condensation of the lignin with carbohydrates.

In another series of experiments the wood was treated for varying lengths of time with hydrochloric acid of density 1.22 at 0 deg. and poured into water and the precipitate extracted with copper oxide-ammonia. Repeated extraction of wood with copper oxide-ammonia dissolves out a considerable portion (Ungar's "lignocelluloses") but it is not possible in this way to obtain a carbohydrate-free lignin, even when the wood has previously been treated 20 minutes or less with hydrochloric acid; after treatment for at least two to two and a half hours with the density 1.22 acid at 0 deg., however, a practically carbohydrate-free lignin can be obtained. Here again the yields of pure lignin, calculated by subtracting from the yields of crude products their carbohydrate contents as determined by the chlorine dioxide-sodium bisulphite method, are in the neighborhood of the "normal" values (25-26 per cent).

Two Methods of Analysis

There is, however, a remarkable difference between the carbohydrate-containing products obtained by the Willstätter-Kalb and the hydrochloric acid-copper oxide-ammonia methods; in those obtained by the first method, the carbohydrate can be removed with copper oxide-ammonia, as mentioned above; possibly the "after hydrolysis" breaks up the chemical although not the physical adsorptive union between the lignin and the carbohydrates; in agreement with this is the fact that the hydrochloric acid compounds of the products prepared by the Willstätter-Kalb method, even when they contain much carbohydrate, always have the black-brown color of the hydrochloric acid compound of the carbohydrate-free lignin and not the green color which seems to be specific to the hydrochloric acid compound of the still physically and chemically combined lignin-carbohydrate complex.

"Genuine" Lignin

Because the methods of preparing lignin hitherto employed yield products markedly different from the "genuine" lignin originally present in the cell wall, Fuchs (*Berichte* 61, 948-951 (1928)) has studied lignin directly in its natural form, especially with respect to those properties which in its isolation undergo changes or lead to alteration (free hydroxyl groups, reactive double bonds and labile complexes). The free hydroxyl groups can be protected by acetylation. Wood with acetic anhydride and sulphuric acid gives about one and a half times its weight of an acetate, insoluble in the acetylating mixture and hardly distinguishable in outward appearance from the original pine wood. A wood containing originally 2.7 per cent acetyl gives on one acetylation a product with 41 per cent acetyl, a value which can be only very slightly increased by repeated reacetylation. The lignin content of the original wood was 26.6 per cent, that of the acetate 16.0 per cent, *i.e.*, about 90 per cent of the original lignin was present in the acetate. The cellulose (60.5 per cent) originally present in the wood remains almost completely in the wood on acetylation, while those substances which by the usual methods are not determined as cellulose or lignin but as pentosans, hexosans, etc., are for the most part removed, for about 97 per cent of the acetate consists of cellulose, lignin and acetic acid. Pine wood contains 4.70 per cent, the acetate 2.95 per cent methoxyl; if the total methoxyl is assigned to the lignin present, the lignin in the original wood contains 17.7 per cent, that in the acetate 17.2 per cent of methoxyl. Since the well-defined highest acetlylation product of cellulose is the triacetate (44.5 per cent acetyl) and the most highly acetylated pine wood lignin described in the literature contains 25.5 per cent acetyl, then the acetate can consist almost only of cellulose triacetate and an acetolignin with about 33 per cent of acetyl. Although no appreciable quantities of the triacetate could be extracted from the acetate with solvents which dissolve cellulose triacetate, its presence in the acetet could nevertheless be proved. When the acetate was treated by the Cross and Bevan method alternately with chlorine and sodium bisulphite there remained, not cellulose, but an acetylcellulose whose acetyl content varied somewhat in different experiments, to be sure, but was always very close to that of the triacetate. It was only difficultly and incompletely soluble in chloroform, not at all soluble in acetone and on hydrolysis with cold alcoholic potassium hydroxide gave pure, lignin-free cellulose. Moreover, under the conditions under which cellulose triacetate dissolves as methyl glucoside (heating under pressure with methyl alcohol containing 0.75 per cent hydrochloric acid), the acetate dissolves to the extent of 92 per cent, one half of the lignin remaining undissolved and most of the rest being reprecipitated by water. Before attempting to split the acetate into its two almost exclusive constituents, the triacetate of cellulose and acetolignin, it would seem best, however, to characterize the double bonds in the genuine lignin and prevent undesirable attacks upon them during its isolation. This will be dealt with in a subsequent paper.

Soluble Lignin

Friedrich (*Z. physiol. Chem.* 176, 127-143 (1928)) has made a further study of soluble pine lignin to determine (1) the conditions under which the alcoholic method yields preparations with maximum alkoxyl content, (2) the influence of the absence of water during the preparation of lignin, and (3) the stability of soluble lignin preparations towards alkali. Methyl alcohol was used in place of ethyl alcohol in order to simplify the alkoxyl determinations, the extent of methylation which occurred being taken as the excess methoxyl over the 14.5 per cent present in the original substance. From a series of experiments in which methyl alcohol and hydrochloric acid were used it appears that the absence of water contributes only slightly towards increasing the methoxyl content of the preparation. On the other hand, the duration of the treatment with solvent is of greater significance. The same result is not obtained when the wood is boiled with methyl alcohol-hydrochloric acid and the dissolved lignin immediately precipitated as when the dissolved lignin is left in contact with the solvent for a longer period at room temperature. The latter treatment, with 80 per cent methyl alcohol, yields a product with higher methoxyl content than the former with absolute methyl alcohol. A combination of the two treatments, *i.e.*, absolute methyl alcohol and prolonged action, gave the maximum methoxyl con-

tent of 23.2 per cent. The other preparations varied between 19.5 and 22.2 per cent methoxyl. Treatment with alkali lowered the methoxyl content, but the quantity of methyl thus removed varied with the different preparations. The greatest decrease was 4.5-5.0 per cent from the preparation with maximum methoxyl content of 23.2 per cent. On the assumption of a molecular weight of about 650 for pure lignin, the addition of one methyl group would raise the methoxyl content from 14.5 to 18.5 per cent and addition of two methyls would raise it to 22.8 per cent. The preparation with maximum methoxyl represents, therefore, the addition of two methyls. On saponification of this product, the methoxyl content dropped to 18.5 per cent; hence one of the two methyl groups introduced into the lignin molecule is in ester linkage. The two methyl groups are evidently added simultaneously, since half of the added methyl is split off by saponification regardless of the methoxyl content of the preparations. The assumption of either an ester or an acetal linkage of lignin to cellulose is untenable. The taking up of alkyl groups is not a reesterfication, else it would occur immediately on rupture of the lignin-cellulose linkage. Actually, the addition of alkyl is a secondary reaction between the lignin already dissolved and the solvent and reaches its maximum only after 20 hours.

In attempting to prepare soluble lignin with only the methoxyl content of the original substance, three new methods of preparation were developed, one of which, the acetic acid method, is especially suitable by reason of simplicity and good yield and bids fair to supersede the usual ethyl alcohol method. If wood flour is added to acetic acid containing 3 volume per cent of concentrated hydrochloric acid and the mixture warmed on a water bath, the lignin readily goes into solution. Within half an hour the liquid becomes yellow to brown; after one hour it is deep brown or black. The wood residue is filtered off and the lignin precipitated from the filtrate by addition of water. The darker the solution, the greater is the yield of lignin. However, it is advisable to interrupt the reaction as soon as a brown color has developed. Preparations of lignin from dark brown to black solutions are discolored and resinify very rapidly to completely insoluble products. To remove the adhering acetic acid the product must be washed thoroughly with water, then dissolved in ethyl alcohol and reprecipitated with water. The dried preparation then shows a methoxyl content of 10.5 per cent, indicating that acetic acid has been taken up. By warming the ethyl alcohol solution with $N/45$ alkali and titrating back, it is shown that 4 acetic acid per molecule of lignin are present. The lignin thus treated now contains 14.4 per cent methoxyl. Instead of the alkali treatment, reprecipitation from chloroform solution by ethyl ether may be used for removing this acetic acid. The acetic acid is merely "added" and not in chemical combination.

Purified lignin with a methoxyl content of 14.5 per cent reacts with phenylhydrazine to yield a product with 2.1 per cent N and 13.5 per cent methoxyl. This corresponds to 1 phenylhydrazine per double molecule of lignin and confirms the author's previously stated view that the keto form of lignin is a double molecule. Methylation of lignin with diazomethane in ethyl alcohol or with methyl sulphate in alkaline solution raises the methoxyl to 23 per cent, corresponding to the addition of two methyls. Saponification then removes one methyl. Titration of the carboxyl group in the saponified product gives an equivalent of approximately 650, a value in agreement with the previously determined molecular weight of lignin. Benzoylation adds 3 benzoyls and treatment with SO_2Cl_2 adds 3 chlorines. Metallic salts of lignin were not obtained in sufficient purity for analysis because of the metallic hydroxide simultaneously occluded. Besides the acetic acid method of preparing lignin, two other methods were used, involving the use of acetone and chloroform. The last is the only one in which no reaction with solvent occurs. The preparation of lignin by heating wood with alkali under pressure is believed to involve merely a change in the colloidal state of the lignin-cellulose aggregate and not a saponification. The same phenomenon of swelling occurs in the acetic acid treatment. On the basis of analysis and molecular weight determination, pine lignin has the empirical formula $C_{81}H_{86}O_{28}$. The mother liquor remaining after precipitation from ethyl alcohol or chloroform solution by means of ethyl ether or benzene contains various lignin substances, which may be recovered by evaporating the mother liquor, redissolving the residue and reprecipitating. Two such substances were thus obtained, one soluble in benzene and the other soluble in ether. The wood residue also contains a small quantity of lignin which cannot be extracted by repeated treatment with acetic acid.

Phillips (*J. Am. Chem. Soc.* 50, 1986-1989 (1928)) has continued his study of the lignin from corn cobs and concludes that the lignin is unequally combined with the carbohydrates, part of it being loosely held, possibly in the form of an ester and the remainder being more firmly held, probably in the form of an ether-like combination.

Bagley & Sewall Co. Busy

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., December 10, 1928.—The largest paper making machine ever built by the Bagley & Sewall Company, of Watertown, is within an eighth of being completed. The machine when completed will be the largest in the world, weighing about 2,000 tons. A considerable portion of the huge machine has already been shipped to the plant of the Great Lakes Pulp and Paper Company at Fort William, Ontario. The Fourdrinier wire part of the machine is practically all that remains to be shipped. The making of the machine has kept the Bagley & Sewall Company running at capacity for many months.

The company is now busy on the construction of a 202-inch bond paper manufacturing machine which is being built for the new paper mill at Hoquiam, Wash. Another machine of 248 inches for use in the manufacture of kraft paper is also under construction for the National Paper Products plant at Port Townsend, Wash.

Work Progresses on New Oregon Mill

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 1, 1928.—Work is progressing on the new pulp mill at Empire, in Southwestern Oregon, for the Sitka Spruce Pulp and Paper Company. A train load of gravel is being trucked from North Bend for the surfacing of the road leading from the highway to the plant. Piling is being delivered and the Johnson mill of Reedsport will begin delivering lumber early in December. The Mountain States Power Company is installing a new power line which will supply both the sawmill and the pulp mill. As soon as this line is completed power will be available for all mill industries at Empire.

George S. Witham Jr. Gets Patent

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., December 10, 1928.—A patent on a beating engine with several unique features has been granted to George S. Witham, Jr., for several years superintendent at the plant of the Union Bag and Paper Company, of this place. The application for the patent was filed December 13, 1926. The invention is described as follows: "In a beating engine, the combination with a roll, of means forming an enclosed, substantially horizontal stock passage from the rear of the roll around to a point near the front thereof, and means within said passage for forcing the stock through."

China Clay Receipts at South Haven

KALAMAZOO, Mich., December 10, 1928.—Nearly 20,000 tons of coating clay from England and sulphite from the Scandinavian countries have been unloaded the past summer at South Haven, ocean port for the paper mills of the Kalamazoo Valley district. Nine cargo ships have entered this port since navigation opened, the last one being the Norwegian steamer *Rei*, loaded with sulphite, which unloaded before November 10.

Paper, and the Influence of Pressroom Condition Upon It*

By Otto W. Fuhrmann [1]

The art of paper making, developed in the Far East and practiced in Europe first in the fourteenth century, has been refined to a remarkable degree. As new printing processes and appliances came into use, paper had to be made to meet certain requirements; and as a result we have today an endless variety of papers for widely differing purposes. The manifold requirements, both of printing technique and ultimate use, preclude standardization except within certain limits and have burdened paper makers with the difficult task of meeting conditions individually. This task has been accomplished in a creditable manner, at great expense of skill and energy and money; yet the manufacturing printer is far from being able to consider one of his materials a standardized product, in the sense that for instance the building industry considers structural steel or cement.

The manufacture of paper has not undergone any basic change since its inception; the fibrous nature of the product is the same whether we examine a wasp's nest, an Egyptian papyrus, an Oriental print, or any of the modern papers, whether hand or machine made. In fact, paper owes its existence to the tendency of vegetable fibers to curl when wet and to adhere to each other in an irregular interlocking manner, called matting or felting. This being the case, it explains at once why paper is not as stable a product as metal, for instance, and why it is affected by changing atmospheric conditions, seasonal and climatic, no matter how far its finishing processes may have been carried. Thus are introduced variable factors far greater than the manufacturing differences between mills.

Since printing has developed from a craft into an industry, precision-engineering principles have been applied gradually to type, engravings, duplicate plates, presses, feeding devices, ink, and other accessories, and greater accuracy is constantly being sought; paper making also, since the invention of paper-making machines and of mechanical and chemical wood pulp, has been put on an engineering basis so that now each mill at least can furnish its own products in fair uniformity.

The introduction of the halftone for illustrations, especially for color work, has brought about mechanical accuracy in printing technique to the point where the micrometer and the unit of one one-thousandth of an inch have superseded guesswork by sight or touch. This accuracy alone makes possible quantity production in uniform quality. Refinements, however, cannot be carried much further in an effort to speed up production or to make production easier; there are obstacles arising from the variable atmospheric conditions to which the industry as a whole, so far has paid little attention, chiefly because printing is one of the industries that can be carried on successfully even in very small units, with modest equipment.

It is a matter of common knowledge, and apparently is accepted as a condition that will always exist merely because it has existed in the past, that a great deal of effort on the part of the printer, especially the typographic printer, is directed toward overcoming manufacturing difficulties that are due to the influence of the atmosphere upon paper. While we cannot hope to control the seasons out of doors, we certainly can control air conditions inside a manufacturing plant, taking into consideration both the material and the human beings. Any printer doubting this statement is respectfully advised to investigate a rather young but tremendously active industry, that of artificial silk, where control of temperature and humidity is a vital factor in production.

Changes in Printing Procedure

Regulation of temperature is nothing new, but regulation of humidity is of rather recent origin, and quite generally its importance in the handling of paper and paper products is not understood in the industry. The reasons are not far to seek. Up to a few decades ago paper was dampened before it went to press. The dampness made it pliable, and the impression was taken with an elastic pressure. The halftone illustrations required paper with a smooth glossy surface, hard packing on the presses, and a "kiss" impression. Speed and register requirements also changed the method of sheet feeding from needle points in the center to guides on the outside edges. All this meant the end of dampened paper in printshops, after more than 400 years of use. Humidity during all this time had never been a problem; now it became one. But so strong is craft habit in printers' minds that even today it is hardly recognized as such, and the remedies for the resulting troubles are sought in palliatives that never reach the source. So we find the peculiar situation in printing plants that the mechanical side of printing is becoming more and more complicated and that new problems arise with the new appliances—the very opposite of efficiency.

Examining the common complaints of printers regarding the influence of the weather upon paper, we find that they are more numerous during the season when artificial heating is required. On the other hand, there are certain sections of the country where excessive humidity prevails on many hot summer days—along the Atlantic seaboard for instance; and since a large part of the industry is located in this area, complaints multiply there at a time when other sections are comparatively free from paper troubles.

Printing Difficulties

The following is an attempt to analyze the printers' paper troubles:

A. Unseasoned paper
   1 Fresh from the mill, or "green," and therefore showing a tendency to either stretch or shrink, thereby making register impossible
   2 Brought from cool storeroom into heated pressroom, paper loses its flatness and will curl along the edges, become wavy all over and cause wrinkles in printing, aside from register trouble

B Seasoned paper
   1 Tendency to develop static electricity by friction (fanning, combing by hand or feeding machine, contact with tapes, rollers, and brushes), with these results:
      a Sheets are hard to separate
      b Printing on first side is scratched when feeding on the back-up
      c Sheets stick together on the delivery pile in the position they fall, and ink offsets either by exclusion of air or by too close contact or by mechanical rubbing caused by the joggers
   2 Ink is not taken readily—leading to offset
   3 More than normal pressure is required—leading to offset

* Contributed by the Printing Industries Division for presentation at the Annual Meeting, New York, December 3 to 7, 1928, of The American Society of Mechanical Engineers.

[1] Chairman, Educational Commission, International Association of Printing House Craftsmen, New York, N. Y.

4 Cracking on fold, especially across grain
5 Tendency to stretch
6 Tendency to curl, wrinkle, and pick
7 Slow drying of ink.

These are by no means all of the possible troubles; an attempt has been made to classify them in a certain order because it can be shown that those under A occur in all seasons, those under B, 1 to 4, mostly in the winter season, and those under B, 5 to 7, particularly in the summer season when excessive humidity prevails.

Humidity

Paper being fibrous is hygroscopic; in other words, it changes its moisture content (which is usually from 4 to 6 per cent, varying for different grades, when delivered by the mill) to the extent of its exposure to the surrounding atmosphere. Paper made under normal mill conditions will show its susceptibility to atmospheric influences in various ways, all detrimental to smooth production, if brought into a printing plant with either an excessive or a deficient relative humidity, by curling, stretching or shrinking, wrinkling, static electricity, picking, cracking, etc. As the moisture in the paper seeks to adjust itself to the surrounding air, the changes take place first along the edges in a stack, creating the dreaded waves. This shows the importance of careful wrapping and packing in transport, and of covering piles of paper on the exposed sides in the plant.

The words "dry" and "moist" applied to atmosphere have a purely relative significance depending upon the temperature. They involve a comparison between the amount of water vapor actually present and that which the air could hold if saturated at the same temperature. The ratio of these two quantities is called "relative humidity." When we say "a relative humidity of 65 per cent," we mean that the amount of water vapor actually present is 65 per cent of what the air might have contained at the given temperature of, say, 70 deg. if it had been saturated.

It would be very easy for any printer to take a series of readings around his printshop and record the variation in temperature and relative humidity. It would be interesting and enlightening to many to see the variation in the amount of water in the different rooms. The following table records the measured humidities in various parts of a paper mill:

	Temperature, deg. fahr.	Relative humidity, per cent
Office	80	36
Outdoors (dry day)	84	37
Cellar	71	64
Outdoors (rainy day)	73	73

This affords an excellent illustration of the increase in humidity on lowering the temperature of the air, and also of the variation with the weather.

At various relative humidities paper holds different percentages of water and will absorb or give up water until it comes to equilibrium with the existing temperature of the room. The following tabulation will illustrate this:

At 70 degrees Fahrenheit

Relative humidity, per cent	Moisture in paper, per cent
100	21.5
90	13.5
80	8.9
70	8.4
60	6.5
50	5.6
40	3.4
30	2.3
20	1.8

During the winter humidity conditions in the pressrooms are particularly bad, for while the average outdoor humidity may be fairly high (50 to 60 per cent), the small amount of moisture contained printing, except in special cases, is seriously doubted, except in lithographic and offset printing where pressure is exerted over in the air at the low temperatures encountered during the winter months causes a serious reduction in relative humidity on being heated inside the building. As an example to illustrate this point, the air at 40 deg. and 50 per cent relative humidity, which are normal winter conditions, contains but 18 grains of moisture in a pound of dry air. On heating such air to 75 deg. without changing the actual amount of moisture present, the relative humidity has been reduced from 50 per cent to 15 per cent because the capacity of the air for holding moisture has been so enormously increased by raising the temperature.

In the summer conditions are frequently just the reverse. At the temperatures prevailing in the summer, even with normal humidity, there is a considerable quantity of moisture available in the air. When this air is brought inside and cooled to any extent, especially if it enters a cool cellar, the temperature is rapidly reduced; the quantity of moisture remaining constant, the humidity must increase. Providing the temperature drop is great enough, especially near walls or any cold object, the air will contain more water than it can hold at that temperature, and the vapor will be deposited in the form of a fog or damp which will settle on the paper, disturbing the equalized moisture conditions and resulting in curls and buckles.

An example based on figures perhaps will help make this idea clearer. A comfortable, normally hot day in the summer would have a temperature of 90 deg. and a humidity of 60 per cent. It is only necessary to drop the temperature of air at this condition to 74 deg. to cause over 100 per cent humidity and consequent condensation of water vapor.

The average monthly outdoor humidity in Washington, D. C., during 1926 ranged from 77 per cent (September) to 48.7 per cent (April), with temperature averages from 77.7 deg fahr. (July) to 33.7 deg. fahr. (January), while the figures for indoors were 65.8 per cent (July) to 21.2 per cent (December) relative humidity, while the temperature averages were 84.3 deg. (July) to 78.1 deg. (September). More impressive are the maximums and minimums existing indoors, and they deserve close attention: maximum humidity 79 per cent (September), minimum 12 per cent (March), whereas the monthly temperature averages do not fluctuate more than a trifle, from 84.3 deg. to 78.1 deg.

These indoor data were collected in the Government Printing Office, and from them we see how closely the temperature is being regulated regardless of the severity of the season; at the same time it is seen that during the months when artificial heating is required, the relative humidity drops far below its normal level—and from the foregoing tables and the remarks about relative humidity it can be inferred that there we have the real reason for many of our production troubles.

Drying out or absorbing moisture would not in itself cause much trouble, except on register work, if it took place evenly over the sheet. A single sheet, exposed on all sides, will "season" within a few minutes; but a pile of stock will not attain moisture equilibrium readily, once the edges have become wavy, because the changes along the edges occur faster than a change can reach the inside. Thus it is clear that large-size sheets cause more trouble than small ones, and that incidentally is one of the reasons why the small fast-running presses are such a success from the point of operating economy as contrasted with the large ones.

How serious stretch or shrinkage may be on register work is shown by a test case published by the S. D. Warren Co. (page 13 of "Warren Standard" No. 1, May, 1927), when a sheet of coated paper 28 by 32½ in., 192 lb. to the thousand, stretched 3/32 in. across the grain in 19 minutes from the opening of the waterproof lined case in a room with 72 per cent relative humidity. Compared with such stretch due to atmospheric condition, the possibility of the existence of a mechanical stretch of paper due to

the whole surface of the sheet; and even there it will be almost impossible to prove on account of the dampening of the plate on each impression.

Static

Static occurs more frequently during the winter. It is generally blamed on "temperature," but it is really due to excessive dryness. Combing operations and any kind of friction through tapes, rollers, or brushes will create static if the moisture content of paper and air is low. On certain types of mechanical feeders the electricity generated by the combing wheels is so great that high-frequency current devices are needed to make the sheets pass through the press.

In recent years an additional drying device at the end of the sheet delivery has found much favor as an "eliminator of static." Such characterization, often heard, is off the point. The heater helps oxidation of the ink and provides a warm-air cushion for the sheet to settle on—in other words, it influences the air surrounding the sheet and the moisture in the sheet—but electricity as such is not affected by heat.

These heating devices, whilst on the whole very useful, have accentuated the static and offset problem that they were intended to eliminate, because of their combined effect upon the air in the pressrooms. The large number of open gas flames consume some of the oxygen needed for drying the ink, but chiefly they still further reduce the moisture content of the air.

The relation between humidity and temperatures is so little understood by printers that they seek remedies for their troubles along entirely different lines. With the temperature kept at 77 deg. fahr. and the gas burners working all day long, they wonder why ink crystallizes and why offset occurs in spite of the addition of "dope." It is a surprise, and really a compliment to individual skill, to see so much good printing done under these conditions when humidity reaches the low level of about 15 per cent instead of normally 55 per cent.

A reasonable amount of humidification means practically no static, less ink, and therefore better drying and less offset, less "doping" and therefore cleaner printing—on the whole, better quality and larger production.

Dehumidification

If dehumidification could be accomplished as easily and effectively as humidification, the greater part of the printer's problems with paper would disappear. This, however, is not the case. Therefore, such conditions as exist during the summer months at the Atlantic seaboard, with temperature around 90 deg. fahr. and humidity of 80 per cent and higher, will always make the lot of the manufacturing printer a hard one, unless he tackles the evil at its source, by constructing and equipping his plant for the specific requirements of printing.

Since local conditions vary greatly, even within the same geographical area and season (for instance, New York City), it is impossible to give a set of figures that printing plants can follow in maintaining a fairly uniform relative humidity. Readings must be taken in the individual plant over a prolonged period in order to establish, first of all, a record of the actual situation, before any remedy can be suggested. Whether changed methods of handling, wrapping and protecting paper, slip sheeting, or sheet driers will bring the desired relief, or whether this will have to be brought about by paper-seasoning or air-conditioning devices, depends not only on an actual survey but also on economic factors that lie outside of the scope of this paper. The fact that printing is carried on in most any type of building and often in very small units militates against the installation of equipment that would eliminate most of the common troubles with paper, by attacking the fundamental source, viz., changing atmospheric conditions.

Bibliography

Complete scientific data on the questions touched upon are contained in the following publications, from which the figures and some comment (given in the smaller type) have been quoted:

E. O. Reed, "Technical Investigations," Division of Tests and Technical Control, U. S. Government Printing Office, Washington, 1927.

Helen U. Kiely, "The Effect of Moisture on Paper," American Writing Paper Co., Holyoke, Mass., 1927.

The Warren Standard, No. 1, "The Wet and Dry Question," S. D. Warren Co., Boston, May, 1927.

Robert Findlay Reed, "The Characteristics of Paper and Their Relation to Lithography," Bulletin 1, Research Series No. 1, Department of Lithographic Research, Lithographic Technical Foundation, University of Cincinnati, 1925.

Lithographic Technical Foundation, "Basic texts for Apprentices in Lithography," Group 1, Unit 6, "Offset Papers," 1927.

Improvements in Ljungstrom Air Preheaters

A new form of heating element intended to increase heat transfer efficiency and still further reduce apparatus volume, weight and cost for given heat return, with corresponding greater net money return from heat recovery and air preheating, has been used in installations of the Ljungstrom Preheater for the past year and is now announced as a standard feature.

The modification from the design of heating element previously used is based upon the substitution of undulating partition sheets for the former flat partition sheets. The undulations are in transverse direction to the vertical channels formed by the corrugations of the companion sheets.

The new arrangement produces extremely quick heat transfers through the increased turbulence and wider penetration of flow compelling the gas and air to strike against instead of merely pass over the metal surface. The heat transfer is accelerated to such a marked degree that a smaller volume of heating elements which are shorter in length and have passages twice as large in cross-sectional area, will produce a given recovery. The use of these larger channels further materially reduces the draft losses through both gas and air sides at all velocities, and in connection with the turbulence, affords greater protection against fouling from soot. Fly ash and entrained carbon are more positively carried out of the preheater, and the soot blower is more effective in dislodging any accumulation that does deposit.

Coincident with the adoption of the new heating element, other design changes which it permits have been introduced to make the arrangement more compact with either integral or independent fans and to further reduce the space occupied by the installation, with corresponding reduction in both apparatus and installation cost. The rotor drive also has been simplified, and in some sizes of the integral fan type, a fully cooled outboard fan bearing has been substituted for the central internal bearing previously used.

Both the integral fan type preheater and the one formerly offered for independent fans have shallower inlet and discharge chambers for both gas and air, giving a much shorter overall height for given capacity. The connections below the rotor of the integral fan type of preheater and all connections in the independent fan type may be located in the end or side of the housing. An additional independent fan type with all-vertical inlet and outlet connections is now offered. This type makes the ducts serve as inlet and outlet chambers and reduces the overall height to less than half that of the former design. The external dimensions of this type are so small that the preheater is virtually a negligible factor in figuring boiler room space requirements.

Literature illustrating and describing the new Ljungstrom Air Preheaters and explaining operation and economies will be sent on application to the manufacturers, The Air Preheater Corporation, 25 Broadway, New York.

Surveying the Mill for White Water Losses to Indicate Possible Savings*

By G H. Chidester[1] and E. R. Schafer[2]

Considerable advance has been made in the past few years in the recovery and utilization of fiber from the effluent of pulp and paper mills. In 1925 it was estimated that about 700 thousand tons of fiber from paper mills were being dicharged into streams. This loss amounting to approximately 9 per cent of the production constituted not only a menace to aquatic life but an enormous economic loss. That the industry is now fully aware of the situation is shown in the results of a survey of the industry recently completed by C. M. Baker for the American Pulp and Paper Association.[3] He states in his report that the total saving to the industry at the present time in the utilization of fiber is estimated to be approximately $5,200,000 annually. However, that there is still much to be done is revealed by the statement that the total recoverable loss due to inefficient utilization is estimated to be valued at approximately $6,300,000.

One of the first steps in the stopping of fiber losses is a determination of the amount of fiber being discharged into the mill sewers. This can best be accomplished by a stystematic survey of the mill. The survey should determine the location and extent of the various white water losses, for by so doing it is possible to separate the water rich in fiber from the leaner waters and provide means for the proper recovery and utilization. This paper deals briefly with the results of two mill surveys in which the Forest Products Laboratory was called upon to assist.[4]

Mill No. 1 at the time of the survey was producing about 50 tons of sulphite pulp, 50 tons of soda pulp, and 60 tons of wrapping and label paper. Mill No. 2, at the time of the survey was producing 40 tons of sulphite pulp, 40 tons of groundwood pulp, and 80 tons of book and catalog paper.

Mill No. 1

In order to make a complete survey of Mill No. 1, weirs and sampling stations were installed at thirteen points, five in each pulp mill and three in the paper mill. The test periods were 36 hours in the sulphite mill, 28 hours in the soda mill, and 136 hours in the paper mill. The results are summarized in Table 1.

It may be noticed that more than 95 thousand gallons of water were being used per ton of pulp in the sulphite mill, 59 thousand in the soda mill, and 27 thousand in the paper mill. These amounts of water are all high. The amount used in the sulphite and soda mills are more than double the normal usage, while the amount used in the paper mill was about the average for such mills at the time the survey was made. Since that time the average amount of water used in paper mills has been reduced to 15,000 gallons per ton, some mills reporting as low a consumption as 2500 gallons.

The effluent most rich in fiber was the blow pit liquor in the sulphite mill which contained 9.13 pounds of fiber per thousand gallons. The effluent was also comparatively rich in the paper mill there being an average for the three machines of 3.53 pounds of recoverable stock per thousand gallons. It was also at these two points that the highest tonnage losses occurred. The total losses in the sulphite mill were found to be 3.27 per cent of the daily production and valued at $86.07, in the soda mill 2.54 per cent valued at $50.20, and the paper mill 4.65 per cent valued at $125.80. The total loss to the mill by this estimate was $262.07 per day.

The survey also disclosed that the inclined screen save-alls, one in the sulphite mill and one on one of the paper machines were operating at but 50 per cent efficiency.

The character of the stock found in the various mill sewers is of interest. From the paper mill, that from one of the machines was particularly clean while that from the other two was slightly dirty. The fiber in the sulphite mill sewers was found to be practically of the same quality as the material finding its way into the finished pulp. The fiber from the soda mill sewers was found to be quite dirty. The problem of contamination of the white water by dirt can best be overcome through separating the floor washings from any white water recovery system.

---

* Presented at Fall Meeting of TAPPI, Wausau, Wis., Sept. 25, 1928. Other papers on white water utilization from this Laboratory are: White Water Losses as Affecting Paper Costs. Vance P. Edwardes. Pulp and Paper Profits 2, 6, 7 (June, 1925); Presented at the meeting of the Cost Association of the Pulp and Paper Industry at Middletown, Ohio, May 22, 1925.

White Water Utilization. Vance P. Edwardes. Paper Trade Journal 80, 14, 94 (April 2, 1925); Pulp and Paper Magazine of Canada 23, 15, 38 (April 9, 1925); Paper Mill and Wood Pulp News 49, 13, 4 (March 28, 1925).

How to Measure White Water Losses. Vance P. Edwardes. Paper Industry 7, 2, 215 (May, 1925); Paper Trade Journal 80, 18, 46 (April 30, 1925).

Waste Problems at Newsprint Mills. Vance P. Edwardes. Paper Industry 7, 3, 451 (June, 1925); Paper Trade Journal 80, 24, 58 (June 11, 1925), Paper Mill and Wood Pulp News 49, 23, 16 (June 6, 1925).

[1] Assistant Engineer in Forest Products, Forest Products Laboratory, Madison, Wis.

[2] Associate Engineer in Forest Products, Forest Products Laboratory, Madison, Wis.

[3] Profit and Loss in Fiber Utilization in the Pulp and Paper Industry. C. M. Baker, Engineer, American Pulp and Paper Association. Paper Trade Journal 87, 12, 32 (Sept., 1928).

[4] Acknowledgment is made to Vance P. Edwardes, formerly on the staff of the Forest Products Laboratory, under whose direction these surveys were made.

TABLE 1.—MILL NO. 1. GENERAL WHITE WATER SURVEY OF THE ENTIRE MILL[1]

Location	Average production per 24 hrs. Pounds	Effluent: Per 24 hours Gallons	Effluent: Per ton of production Gallons	Contents per 1,000 gallons effluent: Fiber Pounds	Filler Pounds	Total	Loss: Per 24 hours: Fiber Pounds	Filler Pounds	Total	Based on production Per cent	Value at $50 per ton Dollars
SULPHITE MILL[2]											
Blow pit white water tank overflow		1,230,000	23,350	0.43					504	0.48	12.60
Blow pit liquor		187,000	3,500	9.13					1709	1.62	42.70
Effluent passing by save-all		901,000	17,100	0.75					712	0.68	17.90
Effluent from save-all		2,724,000	51,710	0.19					521	0.49	12.87
Total	105,300	5,042,000	95,720						3446	3.27	86.07
SODA MILL[2]											
Main sewer	98,851	2,936,000	59,400	0.78					2510	2.54	50.20
PAPER MILL[2]											
No. 1 machine	39,575	854,846	43,200	2.76	0.60	3.36	2359	509	2868	7.25	64.50
No. 2 machine	46,656	254,366	10,900	1.99	2.26	4.25	506	574	1080	2.32	24.30
No. 3 machine	33,983	546,583	32,200	1.89	1.11	3.00	1035	606	1641	4.83	37.00
Total	120,214	1,655,795							5589	4.65	125.80
Average			27,550								

[1] All quantities of weight are on the oven-dry basis. [2] The period of tests were: Sulphite mill, 36 hours; soda mill, 28 hours; paper mill, 136 hours.

The recommendations made to this mill were first that a material reduction in the amount of water being used be effected. Attention was called to the bad practice of allowing the wash up hose to run continually which introduced a large amount of fresh water into the machine-room effluent.. The reuse of the rich white water before allowing it to become diluted with the leather effluent was also recommended. The date of continuous recording and sampling devises was suggested not only as a means of technical control but also because the fact that a continuous record is being obtained of mill operations will frequently have a psychological effect upon the operators and bring about improved conditions.

Since this survey was made Mill No. 1 has effected a saving of one thousand pounds of pulp per day in the sulphite mill by reducing the amount of water from one-third to one-quarter of the amount formerly used and by installing a more efficient save-all. Three save-alls were installed in the paper mill and the saving now amounts to about 100 tons of pulp per month. No changes in the operation of the soda mill have been reported.

Mill No. 2

Two surveys were made at Mill No. 2, one a general survey of the entire mill, the other, made about three months later, a detailed survey of the paper mill. In the first survey two tests each were made in the ground-wood, sulphite, and paper mills. Each test extended over a twelve hour period. The losses were determined, as in the survey of Mill No. 1, by means of weirs and sampling stations. The second survey of the paper mill was made in the same manner as the previous survey in this mill except that the period of each test was not over an hour.

The results of the first survey are summarized in Table 2. The volume of effluent per ton of pulp produced in the ground-wood and sulphite mills was found to be about the average for such mills. The effluent in the paper mill was, however, very high. The fiber loss in the ground-wood mill was 3.47 per cent of the production, in the sulphite mill 2.6 per cent, and in the paper mill 11.2 per cent, which were estimated to value $34.50, $52.50, and $316.70, respectively, or a total loss of $403.70 daily.

As a result of the first survey Mill No. 2 decided to install an efficient save-all system. The object of the second survey was, therefore, to determine first the changes that could be made in the water circulation system to reduce both fiber losses and water consumption, and second, the amounts and character of the white water to be handled by the new equipment. The results are given in Table 3.

The tray and suction-box waters were very rich in fiber and filler. These were combined a part used in making up the machine furnish and the excess run to the save-alls. The wire pit, press pit, suction press, and felt suction-box waters were discharged directly into the sewer. Of these, the wire pit waters carried the greatest amount of solids. Considered as to recovery, the other waters were less in amount and value.

TABLE 3
MILL NO. 2. SUMMARY OF DETAILED SURVEY OF THE PAPER MILL SHOWING THE DISTRIBUTION OF THE PAPER-MACHINE LOSSES[1]

Location	Effluent per 24 hours Gallons	Content of effluent per 1,000 gallons			Loss[2]				
					Per 24 hours			Based on machine loss	Based on total loss
		Fiber	Filler	Total	Fiber	Filler	Total	Per cent	
		Pounds			Pounds				
MACHINE NO. 1									
Machine furnish..		32.3	8.0	40.3					
Tray water.....		15.8	6.8	22.6					
Tray overflow...		12.7	6.6	19.3					
Suction boxes....		4.1	4.4	8.5					
To save-all.....	73,200	8.1	4.5	12.6	593	329	922	72.4	5.2
Wire pit.....	255,500	0.9	0.3	1.2	230	77	307	24.1	1.7
Press pit.....		4.4	6.7	11.1			45	3.5	0.3
Total	328,700						1274	100.0	7.3
MACHINE NO. 2									
Machine furnish..		35.0	8.0	43.0					
Tray water.....		17.7	7.1	24.8					
Tray overflow....		5.3	5.0	10.3					
Suction boxes....		2.4	6.1	8.5					
To save-all.....	94,500	10.0	3.1	13.1	945	293	1238	85.6	7.5
Wire pit.....	314,000	0.2	0.3	0.5	63	94	157	10.9	0.9
Press pit.....		6.8	21.0	27.8			50	3.5	0.3
Total	408,500						1445	100.0	8.7
MACHINE NO. 3									
Machine furnish..		32.7	7.3	40.0					
Tray water.....		16.0	6.5	22.5					
Tray overflow....		7.9	4.1	12.0					
Suction boxes....		3.5	3.5	7.0					
To save-all.....	71,000	10.4	3.6	14.0	738	256	994	59.5	5.9
Wire pit.....	160,600	2.2	1.3	3.5	354	209	563	33.7	3.3
Suction couch...	31,300								
Suction press....	42,800	0.6	0.8	1.4	26	34	60	3.6	0.4
Press pit.....	5,710	3.0	6.3	9.3	17	36	53	3.2	0.3
Total	311,410						1670	100.0	9.9
MACHINE NO. 4									
Machine furnish..		35.4	9.3	44.7					
Tray water.....		17.3	9.0	26.5					
Tray overflow....		6.5	5.3	11.8					
Suction boxes....		3.9	6.6	10.5					
To save-all.....	75,300	7.8	3.8	11.6	587	286	873	44.0	5.1
Wire pit.....	311,000	1.6	1.5	3.1	498	467	965	48.5	5.7
Suction couch....		1.5	3.8	5.3			20	1.0	0.1
Suction press....		2.2	6.1	8.3			60	3.0	0.4
Press pit.....		0.5	1.5	2.0			70	3.5	0.4
Total	386,300						1988	100.0	11.7
MACHINE NO. 5									
Machine furnish..		47.8	11.2	59.0					
Tray water.....		15.0	9.5	24.5					
Tray overflow....		14.0	8.1	22.1					
Suction boxes....		4.8	2.3	7.1					
To save-all.....	340,000	13.4	7.6	21.0	4560	2580	7140	67.1	42.0
Wire pit.....	429,000	3.8	2.5	6.3	1630	1070	2700	25.4	15.9
Suction couch....	17,300	2.4	4.6	7.0	42	79	121	1.1	0.7
Suction press....	35,200	2.7	5.8	8.5	95	204	299	2.8	1.7
Press pit.....	53,600	2.8	4.3	7.1	150	230	380	3.6	2.2
Total	875,100						10640	100.0	62.5

[1] All quantities of weight are on the oven-dry basis.
[2] These are the losses at various points on the machine and do not represent the actual loss as some of the waters were reused and some recovered at the save-all.

The save-alls were found in the first survey to be operating at an efficiency of about 25 per cent. Part of the effluent from the save-alls went to a white water tank for use in the beater furnish, the remainder went to the sewer. At the time of the second survey all the water was run to the sewer. At the same time one shower was shut off on each machine which prevented the dilution of the white water. The net result of these changes was a reduction in the stock losses, as compared to the first

TABLE 2.—MILL NO. 2. GENERAL WHITE WATER SURVEY OF THE ENTIRE MILL[1]

Location	Average production per 24 hrs. Pounds	Effluent		Contents per 1,000 gallons effluent			Loss				
		Per 24 hours	Per ton of production				Per 24 hours			Based on production Per cent	Value Dollars
		Gallons		Fiber	Filler Pounds	Total	Fiber	Filler Pounds	Total		
GROUND WOOD MILL[2]											
White water tank overflow.....	79,386	808,470	20,330			3.42			2760	3.47	34.50
SULPHITE MILL[2]											
Blow pit liquor		759,000				2.23			1695	2.10	41.50
White water tank overflow.....		1,120,640				0.40			444	0.50	11.00
Total	82,086	1,879,640	45,800						2139	2.60	52.50
PAPER MILL[2]											
Nos. 1, 2, 3, and 4 machines.....	97,000	2,118,000	43,700	1.92	2.17	4.09	4060	4590	8650	8.92	
No. 5 machine	64,600	1,022,500	31,650	5.33	3.40	8.73	5450	3480	8930	13.82	
White water tank overflow		38,900		8.49	5.59	14.08	333	220	553		
Total	161,600	3,179,400	75,350						18133	11.20	316.70
Grand total									23032		403.70

[1] All quantities of weight are on the oven-dry basis. [2] Two tests were made each of 12 hours duration.

survey, and the material getting into the sewer during the test was estimated to be equivalent to 14,300 pounds per day. Sixty-two per cent of the loss was found to occur on one machine.

To be sure this particular machine was producing about 67 per cent of the total paper output of the mill. Its loss ratio was, however, higher than even this circumstance could account for and must have been due to some peculiar condition resulting in lower operating efficiency

In correcting these losses, changes in the piping were made which allowed the use of all of the rich tray waters in making-up the furnish. Enough of the suction-box waters were used to complete the make-up and the excess was diverted to the save-all. These changes resulted in recovering about one-half of the paper making materials wasted at the time of the survey and was accomplished without the purchase of additional save-all equipment.

In the ground-wood mill a closed system for water circulation was established which increased the production 50 pounds per cord.

From the information obtained in these surveys Mill No. 2 was able to select the proper type of save-all equipment, wire showers, and sampling and recording devises which brought about still further reductions in the losses. Although we have not been informed as to the final savings accomplished, at our last report the new installation was working satisfactorily.

Conclusion

The tests made at these two mills have been used to illustrate the value of mill surveys for white water loses in indicating possible savings. They have shown that savings may be accomplished not only by the proper installation of save-all equipment but by improvements in equipment arrangement and operation, and by the elimination of unnecessary wasteful practices.

To briefly summarize, a mill survey should be the first step in any program of fiber reclamation because:

(1) It shows the places of excessive loss.

(2) It shows whether the loss is due to excessive volume of effluent or to excessive fiber concentrations or both.

(3) It shows the total monetary value of the losses.

(4) It permits an accurate estimate of the permissible expenditures to correct the wastes and of the amortization period required to write off these expenditures.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Simultaneous Production of Pulp and Food Products From Grasses. Mechanical Pulp Co. Fr. pat. 625,091. Straw, etc., in the form of pressed bales is soaked in water and is then steamed for 2 to 4 hours at a pressure of 5 to 6 atmospheres in such a manner that the condensate can be removed and does not remain in contact with the material. The material is then ground without addition of water, the solid residue is suitable for conversion into paper in the manner specified in Fr. pat. 579,164 and the solubilized material can be used as stock feed or for the manufacture of sugar or alcohol.—A. P.-C.

Wood Measurement. Ellwood Wilson, R. W. Sterns, J. G. Maclaurin and P. J. Murer. Pulp Paper Mag. Can., International No., 139-149 (Feb., 1928); Paper Trade J. 86, No. 10, 53-62 (March 8, 1928). An account of the work carried out from 1923 to 1928 by the Wood Measurement Committee of the Technical Section of the Canadian Pulp and Paper Association. The "cubic foot" being a definite and correct volumetric unit, and being more adaptable to use than "feet board measure" or the "cord," its adoption by the Association as standard unit for pulpwood measurement is recommended. "Weight" in terms of pounds of bone dry wood is also correct and, in many cases, very convenient to apply, and its use is recommended in cases where it suits local conditions to better advantage than volumetric measurement. From an extensive investigation (the results of which are given at some length) it was found that the average weight of wood per unit volume of a large and representative quantity is practically a constant; and also that there is little likelihood of the constant's changing appreciably from year to year; and that the "green" or "bush" volume of the wood is still retained in the block pile—with the exception of a few individual blocks. Therefore, if a cubic foot measurement be made at the mill, the equivalent weight of wood contained therein may be determined by computation. Similarly, if at the mill the wood is weighed, its equivalent green volume may be computed.—A. P.-C.

Libyan Esparto. Camillo Levi. Atti II Congresso Naz. Cim. Pura Applicats 1926, 270-299. Chem. Abstr. 22, 2270-2271. The botanical characteristics of *Stipa tenacissima* L (I) and *Lygeum spartum* L (II) and agricultural and economic problems connected with its cultivation and its utilization for cellulose are described, with illustrations and new data. The chemical composition differed according to the source of the esparto and the nature of the soil. The cellulose was 45 to 50 per cent, the ash of I was 3.4 per cent and of II was 3.9 per cent. About 65 per cent of the ash was silica. A critical examination of the English (sodium hydroxide) process for the production of cellulose showed the high cost of fuel and indicated the possibility of developing a more economical process. A method using chlorine was considered most promising, particularly in Italy, where chlorine from the electrolytic sodium hydroxide process is available in great quantities. A comparison of the de Vains and the Cataldi chlorine processes led to the choice of the latter as a basis for the development of a process for esparto. After numerous experiments, particularly attempts to minimize the harmful action of hydrochloric acid, it was found best to treat the esparto with 2 to 2.5 per cent of sodium hydroxide at 90 degrees for a maximum of two hours with agitation and circulation of the liquors, wash, press, treat with chlorine gas, wash with dilute sodium hydroxide, sort, bleach and dry. The more sodium hydroxide in the intial treatment the less the chlorine usually required, but for economic reasons it is best to minimize the sodium hydroxide and use a relatively large quantity of chlorine. Excellent results are obtainable with 16 parts of sodium hydroxide and 38 to 40 parts of chlorine per 100 parts of dry I, with a 40 per cent yield. Comparative analyses of cellulose from I made by this process and by the English sodium hydroxide process gave the following results: ash, 1.81, 3.0; fats + waxes + resins 1.07, 0.73; aqueous extract, 3.82, 6.49; alpha cellulose 78.8, 72.74; beta cellulose 13.9, 21.48; gamma cellulose 7.3, 5.78; pentosans 20.04, 14.57; copper number 2.16, 3.74; cellulose number 0.57, 0.70. The copper number indicates less alteration of the cellulose in the chlorine process. Analyses of papers made from cellulose prepared by the sodium hydroxide, chlorine, de Vains and Schacht processes are compared. Papers from cellulose of the chlorine process are lighter and softer than those from the other processes. Photomicrographs of cellulose from the chlorine and the sodium hydroxide processes are shown. The cellulose from the chlorine process had a fiber approximately 1.2 mm. long and 11 long. Microscopic differences in the cellulose I and II are described. The chlorine process had

been shown by large scale experiments at the Pomilio electrochemical plants to give an excellent cellulose and to be a great promise industrially.—C. J. W.

Alpha-Cellulose Pulp. C. A. Blodgett and H. H. Hanson Can. pat. 273,013 (Aug. 9, 1927). Sulphite pulp is subjected to an aqueous solution of sulphur in alkaline solution, the soluble products of reaction being subsequently separated from the residual cellulosic solids.—A.P.-C.

Treating Sulphate and Soda Pulp. R. Collins. U.S. pat. 1,648,111 (Nov. 8, 1927). A charge of pulp and cooking liquor is blown from a digester, the major portion of the cooking liquor is separated from the pulp by drainage without dilution, and this undiluted liquor is removed for subsequent recovery; the remaining portion of the liquor is washed out from the pulp and this diluted liquor is evaporated.—A.P.-C.

Pulping Process. L. Bradley and E. F. McKeefe, U. S. pat. 1,651,665, (Dec. 6, 1927). Wood is cooked under pressure with a liquor containing caustic soda and a quantity of sodium sulphite not exceeding that of the caustic soda.—A.P.-C.

Pulping Process. H. Wallin. Can. pat. 270,133 (Apr. 26, 1927). Cellulose and other chemical products are produced by cooking cellulosic material with a solution of an alkali silicate. The alkali silicate is regenerated for re-use by evaporating the cooking liquor and heating the residue.—A.P.-C.

Preparing Fiber from Wood or Other Vegetable Materials. J. Billwiller. U. S. pat. 1,649,281, (Nov. 15, 1927). Wood or other material is heated to at least 180 degrees C. under pressure with an ammonia solution and subsequently digested with a sulphite solution.—A.P.-C.

"Imitation Kraft" Paper by the So Called "Gluteor" Process. Raymond Fournier. Papeterie 50, 170-174 (Feb. 25, 1928). Polemical with Barbier Papeterie 49, 538-542 (June 25, 1927) as regards both the cost and strength of straw paper produced by the so called "gluteor" process as compared with the cost of soda straw pulp and the strength of kraft pulp.—A.P.-C.

Report of the Sulphate Pulp Committee. C. K. Textor. Paper Trade J. 86, No. 9, 60-61 (Mar. 1, 1928). A rather extensive test made to determine stack losses in a soda mill showed that about 5 per cent of the total soda charged into the incinerators was discharged with the gases. Experimental size electrostatic precipitators were not available to test the recovery of soda from the gases. A mechanical separator of the cyclone type gave a removal of only about 30 per cent of the entrained soda. Experiments conducted with scrubbers, while not conclusive, indicated that scrubbers will not prove satisfactory in recovering soda from stack gases. Methods of ascertaining sulphate pulp quality were studied with a view to establishing a standard method. Methods established by five paper mill laboratories for routine testing, each giving results on duplicate samples which check within 2 per cent by strict attention to all details, were compared on five different pulps, the results presenting wide variations and some contradictions.—A.P.-C.

Manufacture of Tissue Papers from Brown Pulp. F. Hoyer. Papier 30, 1211-1216 (November, 1927). A description, with numerous practical operating hints, of the steaming or boiling and grinding of wood and of the subsequent treatment of the stock, for making thin wrappings, toilet papers, etc.—A.P.-C.

Mechanical Process for the Production of Pulp from Wood. Naamlooze Vennootschap Handelmaatschcappij "Fibra." Fr. pat. 629,239. The wood is divided into small pieces, subjected to a dry refining treatment and finally to a wet refining treatment.—A.P.-C.

History of Sulphate Pulp Manufacture. L. J. Dorenfeldt. Papir Journalen No. 21, 168 (1927). A review of European practice, with a translation of C. F. Dahl's "Vorschriften fuer die Cellulosefabrikation" as given to the author in 1884. The process is covered in detail as to wood preparation, cooking, liquor making and causticizing, recovery, bleaching and elimination of odor.—C.E.P.

Pulp Purifying and Viscose Process. G. A. Richter assignor to Brown Co. Can. pat. 273,847, Sept. 13, 1927; U. S. pat. 1,653,124 (Dec. 20, 1927). A cyclic process of treating pulp in the production of viscose consists in soaking purified pulp in a bath containing a solution of caustic soda, removing the pulp therefrom and expressing the excess of caustic soda solution. The raw pulp is purified for such soaking treatment by the expressed caustic soda solution.—A.P.-C.

Method of Adding Filler to Paper. E. Mahler and E. A. Rothchild assignors to Kimberly-Clark Co. U. S. pat. 1,650,022 (Nov. 22, 1927). Clay is treated with sulphuric acid to form alum, and a solution of the alum is added to the paper stock together with a by-product of the reaction.—A.P.-C.

Pulp Beater. L. Albeus Barry and L. Ambrose Barry. U.S. pat. 1, 647,982, Nov. 8, 1927. In order to break up and remove the stock which generally tends to collect and become wadded between the ends of the rolls and the walls of the trough, the walls of the trough next to the ends of the rolls are provided with plates having outwardly projecting radially spaced cutters or blades, and the ends of the roll have similary projecting blades placed so as to pass between the fixed blades on the walls of the trough.—A.P.-C.

Beating and Washing of Rags. Leo. Schlick. Paper Trade J. 86, No. 22, 47-49 (May 31, 1928). A discussion showing that these processes have made practically no advance in the last 100 years and pointing out the lines along which progress should be made.—A.P.-C.

Some Experiments in Processing Pulp in the Rod Mill. G. H. Chidester. Paper Trade J. 86, No. 25, 51-56 (June 21, 1928); Tech. Assoc. Papers XI, 127-140 (June, 1928). Rod mill studies showed that a less severe action is needed in developing strength qualities than in the disintegration of chips or fiber bundles and that the use of a high consistency and lighter rods is desirable. Studies in the rod milling of kraft pulp indicate that under any given milling conditions there results a development of strength which passes through a maximum, which varies with the pulp consistency and also with variation in the ratio of rod weight to rod surface. Thus, by proper selection and control of consistency and ratio of weight to surface of the rods, a given strength property can be brought to a maximum considerably higher than can be otherwise reached. The higher the consistency the less the cutting effect as compared to the hydration. In beating kraft pulp it is important to keep the consistency above 4 per cent oven dry, below this point there being a higher power consumption per ton and a greater tendency to excessive smashing and cutting of the fiber. The power consumption per ton required to refine to approximately the same degree as in kraft wrapping paper decreases with an increase in consistency up to 8 per cent and then increases. Consistencies from 6 to 18 per cent are probably the most satisfactory for this work. The use of light rods showed the same general tendency in regard to the development of strength properties as increasing the consistency. Light rods give a slower development of strength at a slightly greater power consumption than heavy rods; but it gives a greater strength development, as shown by an increase in all the strength tests. By varying the consistency and weight of the rods, any desired effect between wide limits can be obtained. When compared with commercial beaters, the rod mill uses about half the power consumption per ton of pulp required to produce a sheet of kraft wrapping paper that is slightly stronger than the commercial sheet. In preparing greaseproof paper, slightly more power is used to produce a more hydrated sheet. In processing manila hemp rope stocks, the rod mill gave a high degree of hydration without excessively injuring the fiber, and reduced the shives effectively. Sulphite screenings were refined with a power consumption of 4, 10 and 20 horsepower-days per ton of pulp, the product varying in quality from that of the usual degree of refinement to a pulp in which the shives were completely reduced.—A.P.-C.

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Edited by
THOS. J. BURKE, C. A., Sec.-Treas.

Standard Cost in the Book Paper Mill*

By Breck Aspinwall, Cashier, Oxford Miami Paper Co.

I do not know how many of you in the pulp and paper industry make use of standard costs. I wonder if those, who do not, have really given the subject as much study and consideration as it deserves. In practically every industry there will be found many supporters of standard costs who believe that they are able, through their use, to obtain a clearer insight into their business, to have better control of the various operations, to enable them to meet competition with a clearer knowledge of what the profit or loss will be under given conditions and to obtain financial reports that will present a more vivid picture of what actually happened during the preceding period. I think I can safely say that within my rather limited experience the man who, after giving standard costs a fair practical trial, has gone back to the use of actual costs, is the exception.

The subject covers too much ground to permit a paper of this kind to adequately present all of its advantages and disadvantages or to make a really fair comparison between actual and standard costs. There have been volumes written during the last ten years and I imagine you have all read and heard more than you wanted on this subject.

I would not be at all surprised if, after reading and hearing all this propaganda, an accountant might consider the whole problem highly theoretical, and while in theory he might agree with some of the arguments advanced, yet conclude that from a practical standpoint actual costs will serve him best. He might shrink from putting on his books any figures which he would look upon as estimates and which cannot be supported by vouchers or invoices and feels perhaps that unless his costs are founded upon these actual figures, unless he is able to completely analyze and support them, he is treading on dangerous ground.

When he talks to an accountant in some other industry and learns that standards are being successfully employed, he will probably compare mentally the technicalities of pulp and paper making with that industry and may come to the conclusion that the particular problems of the paper maker, inasmuch as they are undoubtedly peculiar to themselves, are obstacles to the successful operation of standard costs.

Undoubtedly there are cases where costs on an actual basis will prove more advantageous than standards, but usually the drawbacks to the use of the latter are found to lie in the difficulty in predetermining fair estimates of speeds, efficiencies, etc. In a factory engaged in making specialties, where a great variety of products are turned out, many involving new operations or special treatment, standards may prove cumbersome and complicated and the predetermining of wastes, speeds, efficiency, etc., will prove more costly in time and money than can be justified by the results. However, it must be realized that even in such a business these factors must be predetermined with some degree of accuracy before a selling price can be set that will yield a reasonable profit, and in these days of keen competition and small profit margin the management must be able to estimate his costs within narrow limits, otherwise disaster is being courted. The advisability of using standards depends not so much upon the nature of any particular industry as the policy and kind of business done by the individual establishment.

Fertile Field for Standard Costs

Pulp and paper making seems to offer a particularly fertile field for standard costs because as a rule the variety of products is not very great, though of course there are exceptions. Those of you who have not used standard costs may have an impression that they are something that have recently been invented and quite foreign to anything which you yourselves have ever employed and that their use would involve a radical change in the principles of your present accounting methods. As a matter of fact, I think I can safely predict that every one of you employ something closely resembling standard costs in your business today, but you keep the figures as a side issue and don't systematically use and tie them into the accounting records.

There is probably not an operation performed in your mill where you do not have a fairly definite idea as to the cost involved in producing the various grades of pulp or paper. At least I am confident that this will be true of those grades which are made frequently. These ideas are formed and based upon your experience. If cost figures are compiled by applying material, labor and burden directly to each order and the cost accountant were asked by the management for an estimate on a certain grade of paper for the purpose of setting a selling price to meet competition, and yet assure a reasonable profit, I think he would naturally turn to his records of past performances on this or similar grades. If the estimates were an important one he would carefully analyze the figures before him, scanning the costs recorded against each operation for as many orders as had been produced in the mill covering as long a period of time as the operating conditions remained comparable with existing ones.

Orders showing unusually high costs in any operation would be investigated to determine the cause and if this proved to be due to unusual circumstances the figures shown would be discounted.

* Address delivered at Cleveland, Ohio, at Convention held by Cost Association of the Paper Industry.

In a similar manner, unusually low costs would be analyzed and adjusted if found to be due to some particularly fortunate conditions which could not safely be counted upon in the future. I think I may safely say that all unusually high and low costs would be reviewed with suspicion and if not explainable excluded from the calculation. The average of the remaining figures would then form the foundation of the accountant's estimate.

Two factors influence his final decision. If his estimate is set at a cost which is higher than that for which the paper can be made, he will probably be responsible for the loss of a considerable volume of business because competitors will take the orders at a price which his management dare not quote. On the other hand, if the cost estimate proves lower than can be met by the manufacturing department, the mill will be busy enough but the expected profit will probably be in red on the financial statements. Therefore, he will not present his figures until he is satisfied that in his best judgment they represent the real cost of producing the paper under normal operating conditions. Such an estimate comes very close to being the standard costs for that grade of paper on those operations through which it passes.

Attempting to Establish Normal Costs

Naturally I do not necessarily recommend the procedure described as the best method of setting normal or standard costs but I am just pointing out the fact that every cost accountant in every industry is constantly engaged in attempting to establish normal costs (or any other name that you choose to call them) as part of his daily routine. I venture to say that every one of you, no matter what kind of an accounting system you operate, have now in your possession a set of cost figures covering at least the important products which, if your data is reliable and your judgment good, will closely coincide to what I know as standard costs. They may or may not be systematically tabulated but somewhere in your organization they are on tap and can be produced when needed.

The question naturally arises "If we now have standard costs, or at least something very close to them, what object is to be gained by incorporating these figures in the books?" As I see it, there are two main reasons for doing this. First—to properly and systematically verify these estimates and check them with actual performance. Remember that I said your estimates represented standard costs provided the data upon which they are based is reliable and your judgment sound. There is nothing personal in what I am going to say but in all seriousness I very much doubt the average cost accountant's ability to set fair standards that will really represent the cost of production under normal conditions with the data that is made available by the average actual cost system. It is not that I suspect errors in the collection and distribution of the figures, although I do believe that there is that bare possibility. It is not that there is insufficient data at the disposal of the accountant but that there is probably more than he can digest.

Furthermore, unless all the circumstances under which each order was produced is recorded in detail, it will be difficult for him to tell whether he is looking at figures which represent normal costs or whether they are distorted through some unusual conditions during the production of that particular order, an accident to the machinery, a batch of free stock, an operator whose efficiency is below the average, etc., a hundred reasons why the costs may not be normal.

The extra cost of such unusual circumstances cannot be included in a fair estimate of future costs for the grade in question. The order was burdened with them simply because they happened to occur when it was being run. The next order will probably be made with little or no trouble of this kind for considerably less money. It is true that due allowance must be made for the human equation but the burden of abnormal expenses that are not peculiar to the fabrication of the order itself should be borne by all orders equally. The laws of chance will in the long run insure the equal distribution of such burden over the product as a whole. Lastly, we are not all blessed with perfect judgment and whether good or bad a systematic check on it is a wise precaution.

I do not doubt that most of you do check estimates with actual performance, but how many orders do you compare? Do you do it systematically? Do you tabulate the differences so that you may see whether over a long period your estimates are proving accurate? Do you assemble all the variations so that you may see in cold dollars and cents what they amount to and what the effect in your errors in judgment is having on the finances of your Company? Do you attempt to analyze all the causes for the differences? Do you tabulate and total them so that the management may know the reasons and the money that was lost because of the failure of the mill to meet the estimates upon which the product was sold?

If these things are done thoroughly and as a regular routine, more of the advantages of a standard cost system are being realized. If you do them spasmodically, if you spot check, if you rivet your attention only upon the largest items, you may be overlooking important facts and there is a grave danger that the aggregate of differences and discrepancies in the uninspected, smaller items, if taken into consideration, might seriously alter or completely reverse the results.

To make a thorough job, to assist in the accuracy of results, to make the work part of the regular routine and a real analysis of the financial statement, incorporate the figures in the books and tie them into the inventories. It is certainly no more difficult than carrying these figures as a side issue and much of the laborious work involved in posting the actual costs can safely be eliminated.

Measure of Departmental Efficiency

The second important reason for incorporating the standards in the books is that they may be used as a measure of departmental efficiency. For any one operation the standard costs in total, if accurately determined, will represent the money that should have been expended by that department during the period. The difference between this figure and the actual expenses will indicate how efficiently the operation has been conducted.

Now even though the standards, through poor judgment or inaccurate basic information are set too high or too low, their value as a measure is not entirely destroyed. So long as they remain constant increases or decreases from these standards will clearly show the comparison of efficiency as compared with previous periods.

The use of these results, if judiciously employed by the management, constitute a more powerful tool for promoting efficiency in the mill than you may realize. If the foreman and operators are tactfully approached and thoroughly understand what the figures mean, not only will it induce a spirit of friendly rivalry but the standards become a bogey for each to shoot at and the satisfaction of beating one's own best record is in itself a strong incentive for improvement.

Concrete Case Considered

So much for standards in the abstract. It may be of interest to you now to consider a concrete case where such a system is now in operation in a paper mill. Perhaps this will bring the problem a little nearer home and we will all be on familiar ground. My first thought when asked to read this paper was to show in considerable detail exactly how the standards were computed, to describe minutely how they are employed, to show the accounts carried in the books, to show you the forms we use both in obtaining and tabulating the information from the mill and finally the statements that present the picture of the months operation to the management.

Upon further consideration, I came to the conclusion that this was a very large order to fill and I doubted my ability in the time at our disposal to give you a story loaded with this mass of detail that would leave you with a really clear impression of what it

was all about. It would be a case of failing to see the forest because of the leaves.

Outline of Principles Employed

I am, therefore, going to try to sketch for you a bold outline of the principles employed and in a general way only, the methods of applying these principles and the results obtained. I do not believe that the details would be of much benefit anyway. Each mill will have its own problems, each its own point of view. Barely two men will approach and solve an intricate business problem in exactly the same manner. Certain factors which in one mill are considered highly important will in another be negligible. In many industries uniform cost systems have been installed in the plants of different members and they are uniform in so far as the final results are concerned, and yet an examination of the forms and methods used in collecting and tabulating the data and the forms in which the final picture is presented to the management will differ widely.

Therefore, if we stick to the general outline, to the principles underlying the scheme, I believe you will get a clearer conception of how it operates and how the same principles might apply to your own particular establishment. In any case, the details must be worked out to suit local conditions and the peculiarities of each organization and these details must fit. You may have the greatest admiration for a suit of clothes worn by the Prince of Wales and vote him the best dressed man you have ever seen, but you would not ask your tailor to make you an exact duplicate. You would expect him to follow the general patterns and lines but he must alter the details to suit your own anatomy. If it does not fit, if it is not comfortable, if it binds or chafes, you will not wear it.

A brief description of the mill itself may assist in a clearer understanding of the operation of the cost system. It is the Oxford Miami Paper Company at West Carrollton, Ohio. The principal products are book papers, sulphite bonds, envelope, etc. It is a four machine mill, employing about 500 hands with a total capacity of well over 100 tons per day. In conjunction with the mill, is a book stock plant for converting old paper into pulp. All other pulps are purchased outside.

By far the larger portion of the product is sold in sheets and the finishing department, for preparing, sorting and packing, is furnished with seven supercalender stacks, fourteen cutters and some auxiliary equipment such as trimmers, sorting tables, etc. Most of the papers are hand sorted and the methods of packing employed are quite varied—skids, cases, soft fold, frames, cartons, etc.

During a single month somewhere between thirty and forty different grades will be run and I do not mean different in name only, but in the actual make up of the furnish. The total number of distinct grades made during the course of a year is naturally very much larger than this and each grade is customarily made in several weights and each may be finished in one of two or three ways, cut in different size sheets or packed in anyone of several ways. Thus it will be seen that the final product is quite varied.

Establishing Standards at Oxford Miami Mill

With this general picture before you, I will briefly outline the steps taken in establishing the standards and then describe how they are used in the accounting and finally the picture painted for the management and how the results are used in guiding and controlling the conduct of the business.

The usually accepted elements of cost are materials, labor and burden. As the treatment of each of these elements differ materially in the accounts, I believe it would be well to consider them separately.

The first step in establishing standard material costs was to set up a standard furnish or bill of material for each grade. In our case this was not particularly difficult to obtain and I cannot concieve of any modern, well conducted paper mill operating successfully without such a set of standards irrespective of what sort of a cost system they employ. It is the recipe, the manufacturing formula, and the quality and uniformity of the finished product depends in a great measure upon the accuracy with which this formula is carried out in practice.

Market Changes Anticipated

In valuing these standard formulas or furnishes, we elected to adopt standard prices for each of the several raw materials. These prices were practically the average cost at the current market f.o.b. mill. Many of the items were on a contract basis but an effort was made to anticipate market changes for at least a few months ahead so that our standards would closely correspond to market for as long a period as possible.

Please understand that this election is optional. Standard prices of raw materials are not strictly essential to a standard cost system and many prefer current market prices. Of course, the latter method necessitates carrying these varying prices through the inventory accounts of Work-in-Process and Finished Stock. To simplify the accounting somewhat, if standard prices are used, and unless the market fluctuates violently, the values in the inventories of Process and Finished Stock will be stated accurately enough for all practical purposes. I should mention in passing, however, that if standard prices are adopted they should be reviewed periodically and revised as soon as the market has altered sufficiently to warrant it.

Bone Dry Method Adopted

I notice that one of the papers to be presented later deals with the problem of air dry or bone dry weights in mill records. We of course had to adopt one or the other methods and after many heated arguments decided upon bone dry. Whether or not we chose wisely, I will leave to the decision of Mr. Van Douser when he presents his paper later this morning.

The furnish itself was naturally expressed in terms of the beater load, in fact it constitutes the instruction to the operator as to what he should put into each beater. From the cost point of view, the total weight of the beater load did not interest us. The material cost per ton of the finished paper would be the same whether the beater was loaded with 1000 pounds or 2000 pounds. What did interest us was the proportionate amount of each material and we, therefore, expressed the quantities of each raw material in the formula as a percentage of the whole. The material cost per 100 pounds of pulp was then computed knowing the percentage of the several ingredients and the standard price of each.

Factor of Shrinkage

The next serpent to rear its ugly head was that bane of existence to all paper makers—shrinkage. For any given grade how many pounds of rough paper will be produced by the machine for each ton of material put into the beaters? I shall pass hurriedly over the methods used in determining this factor. If any of you have a better one you will receive my lifelong gratitude by imparting it. Of course we had a fairly accurate figure of the shrinkage on the machines as a whole and we had a general idea that the losses were greatest in paper with a high clay content, but our system is a closed one and much of this clay is recovered in one form or another. Suffice it to say that we set shrinkage for each grade.

With these figures established, it was a simple calculation to determine the cost per 100 pounds of rough paper. 100 pounds of a certain grade of paper having a given shrinkage would require so many pounds of pulp in the beater and the cost of this pulp was already determined on the furnish sheets.

The manner of introducing the material standards and carrying them through the accounts is in general terms as follows. The usual set of raw material inventory accounts are maintained, one for each distinct kind or class. These are conducted in the ordinary way, being debited with incoming material at purchase

price, freight included, and credited also at purchase price with the quantities used in the beaters.

Variance Account for Each Material

Corresponding to each of these inventory accounts, there is a so-called "Variance Account," one for each kind of material. Here the material costs are converted from actual weight and price to standard sets at standard costs. On the debit side are posted the actual materials used at purchase price, the contra to the credit in the corresponding inventory account. The credit to this variance account consists of the total standard quantity of the material at standard costs, which is contained in the production of all grades run on the machines during the month.

I will not attempt to show you in detail how this is computed and tabulated. I have previously pointed out that for each grade of paper the estimated or standard quantities of pulp required at the beaters had been established and that the materials comprising the mixture had been settled upon in the furnishes. Therefore, having the total production of each grade for the month, it is simple mathematics to compute the individual raw materials required and to summarize these in total for the entire production. A couple of hours at the end of the month suffice for this work.

Thus it will be clear that any balance remaining in this variance account must represent the difference or variation from standards both in weight and value. This discrepancy of costs may be in part due to deviations from the standard purchase price of the material. The remainder, however, indicates how closely the furnishes were followed in loading the beaters. A simple calculation separates these two factors and they may then, if desired, be further analyzed by machines, by grades, by orders, by individual operators, that due to excessive shrinkage, etc., to find the causes for the discrepancies. The limit is solely the amount of clerical work involved and the accuracy of the basic reports as received from the mill. One of the advantages peculiar to standard costs is its flexibility in this respect. Accounts showing small variances, thus indicating efficient operation, may be passed over if desired and all efforts concentrated upon the larger variance, analyzing it in perhaps several ways. This problem, if skillfully attacked, will usually result in the revelation of the real causes underlying the discrepancy. It may develop that the standards themselves are too high or too low, in which case a revision is indicated, but after the system has been in operation for some time the errors in the original standards are gradually eliminated through these analyses. Then the real trouble can be smoked out and the proper correction applied by the management at its source.

This very brief description of the treatment of standard material costs on the books will illustrate the principles employed. From this point onward standard costs are carried through the various Work in Process and Finished Stock Accounts to Cost of Sales in much the ordinary way.

In the treatment of labor and burden, it was decided to combine both these elements into a single rate. This may be considered as two separate rates used together for convenience. The object of making this combination was simplicity and convenience.

Budget for Each Department

In establishing these standards it was first necessary to set up for each operating department or center a budget. This should represent the cost of operation for normal production, and naturally, at least in most paper mills, this means the production of the machines on a twenty-four hour basis, six days a week. For the labor element the determination of the budget was not particularly intricate or difficult. The number of employees in most departments is generally fairly constant and the rate of wages are standardized.

In setting the burden budget the problem was more difficult. I cannot enter here into the details of how this was done. The question of burden distribution is always before the cost accountant regardless of the type of system used and each has his own ideas upon the most equitable method for apportioning the various elements to the cost of the product.

In general terms each element of burden expense was considered separately and an amount set for normal operation. Taxes, insurance, depreciation, interest on the investment of plant equipment and inventories, supplies of all sorts, supervision, repairs and miscellaneous expenses incidental to the mill's operation, were carefully estimated and each in the best of our judgment distributed on the most equitable basis to the various departments.

After this had been done, the budget for the auxiliary centers, such as steam, power, water, general burden, etc., were apportioned to the producing departments on the basis of benefits derived. We then had for each center engaged in actual production, preparing the raw materials, making or finishing the paper, storing or shipping it, a budget representing expenditure during normal conditions, and these taken together covered the manufacturing expenses of the entire mill.

Two general methods were used in applying the budget to the product in the form of a standard rate. In centers where a machine is the main factor for production and the labor may be considered as employed to tend the machine and keep it running, a machine hour rate was computed and the standard cost per pound of paper calculated by dividing the machine rate by the estimated out-put per hour of each grade and weight of paper. In centers where hand work predominated and machine hours were not practical, a rate per pound of paper was developed on the basis of the time element required to perform the operation.

Standard Conversion Rates

I think perhaps that I can illustrate most clearly the use of these standard conversion rates in the account by describing the methods employed in two typical departments, one having the machine hour rate and the other having the standard rate computed directly as a cost per pound. For the first a paper machine will be chosen. Each of our machines, by the way, constitute a separate center. An account for each burden center is provided in the books. For convenience in analysis, the account is subdivided into several main classes of expense—Fixed Charges, Labor, Repairs, Supplies, Steam, General Burden, etc. Debits to this account consist of the actual expenses incurred during the month.

Fixed Charges naturally do not vary and the department's portion of this expense, as determined in the budget, is posted each month, crediting the Reserve Account for Taxes, Depreciation Etc. The other items representing actual expenditures come from payroll distribution, supplies from the store room, steam and power on the basis of meter readings, etc. I shall insert here that a standard cost per pound of steam and per kilowatt of power have been established and the consumers of these commodities are charged on this basis.

The credit to the burden account is the product of the total hours run by the machine and the standard machine hour rate. This is termed "Earned Burden." Now it must be evident that if the machine has operated full time, or rather the estimated number of hours which were used in computing the standard rate (for some reasonable allowance must be made for accidents, wash ups, etc.) the product of machine hours and standard rate must exactly equal the budget for the month. If full time has not been attained the credit to the burden account will be less than the budget and this difference represents the cost of idleness of the machine.

It is termed "Unearned Burden" and in any type of cost system this factor, to my mind, has no bearing upon and should not be included in the cost of production. There is an axiom generally accepted by accountants that losses should be written off when they occur and lost time in a mill from any cause whatsoever represents a direct loss to the business and should be written off then

BOLTON QUALITY

JOHN W. BOLTON & SONS, INC.

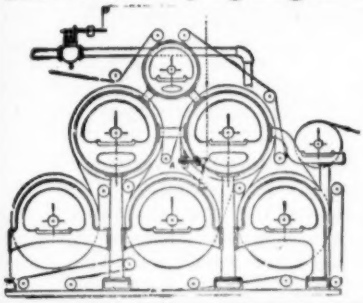
EAGLE KNIFE & BAR WORKS

Lawrence, Mass.

The only firm making KNIVES for every machine from wood pile to finishing room.

It's the KNIVES that do the work!

The Pickles Drying Regulator



WE ARE SAFE IN OUR PROPOSITION

YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**

HIGHEST SPEED

Paper Bag Machinery

Get My Quotations Before Placing Your Orders

Special Machinery Designed and Built

A. L. PARRISH

1702 Robinson St., South Bend, Ind.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company

PROVIDENCE, R. I.

and there. The inclusion of any part of this factor in the costs during a dull period results in an increase in inventory values which has no real justification and defers the loss which really occured when the mill was shut down, until such time when the goods are sold. The differences between the actual expenses in the burden account and the budget itself (and these can be compared item by item) show up excessive or abnormal expenditures or economies with the opportunity of analyzing and investigating. These differences are termed "Burden Variance" and the sum of the Unearned Burden and Burden Variance is equal to the difference between the debits and credits in the burden account.

For this paper machine center which we are considering, another account is provided. This is called, perhaps for want of a better name, Machine Conversion Variance. The debit to this account consists of the earned burden for the machine which was credited to the Burden account, computed by multiplying the running time of the machine by the standard hourly rate. The credit is the machine's production for the month, each grade being priced at the standard cost per pound. Let me remind you that the standard cost per pound was obtained by dividing the machine hour rate by the expected pounds of production per hour. Consequently, if expected production has been attained during the time the machine operated there can be no variance in the account. Any deviation from this expected out-put will be reflected as a balance in the account and truly represents the efficiency of the machine, or it might be better to say the efficiency as compared to the bogey which was established for it. Furthermore, the deviation will be exactly in proportion to the increase or decrease in the accomplishment as compared to the bogey. Analysis of this deviation by grades, orders or operators, can be made when desired with a little clerical work.

Carrying the standard conversion costs through the Process and Finished Stock Accounts is simple enough. It is only a case of properly reflecting the movement of the product through the rest of the mill and from there the Cost of Sales as the goods are shipped, standard costs being employed throughout. In all this work the use of fixed standards make it possible to record these movements for each finished product in pounds only, thus making a single extension of the total weight of each at the end of the month.

Any center where machine hour rates cannot conveniently be employed, for example the shipping department, the account representing efficiency is omitted and the rate per pound must be credited directly to the burden account of the center itself. Thus in the results no distinction is made between the cost of idleness and that of inefficiency. An analysis that will make this distinction accurately is difficult, if not impossible, but a thorough knowledge of the conditions in such a center will give a very fair indication of the variances that may be due to either of these causes. The accounting for any of the other operating centers is very similar to either one or the other typical department outlined.

All the variances for the various materials and the operating centers are carried directly to Profit and Loss so that the management have before them a statement arranged about as follows:

Sales	$0000	
Less Cost of Sales (at Standard)	0000	
Gross Standard Profit		0000
Variance		
Total Unearned Burden (cost of idleness)	$0000	
Total Burden Variance (deviations from budgeted expense)	0000	
Material Purchase Variance (deviations of purchase prices)	0000	
Material Operating Variances (deviations from standard formulas)	0000	
Machine Conversion Variance	0000	0000
Manufacturing Profit		$0000

Each of these variances are supported by a detailed statement. The unearned burden is shown by departments, the Burden Variances by departments and class of expense, purchase and operating variances for each material and the conversion variance representing efficiency is shown by departments.

Results of Operations Clarified

With this report the management should be able to obtain a fairly clear picture of the results of the operations, particularly if the larger variances have been analyzed and explained in a supplemental report submitted by the cost accountant. In addition, if the interest of the foremen has been gained and they understand the significance of the figures, through which the departmental economies and efficiencies have been measured, the response is apt to be agreeably surprising. Furthermore, and this is an important consideration, the trend of the variances indicate how closely the standards are being met, where and how the discrepancies are occurring. This is an exceedingly helpful guide for determining sane and intelligent selling prices and selling policies.

Enormous Advantage To Be Gained

There is no question but that most of the information and much of the analysis which a standard cost system yields may be obtained through other sources. I believe, however, that there is an enormous advantage to be gained by having this data tied into the accounts so that the entire picture may be assembled and presented to the management clearly and concisely.

Bill To Make Rag Pulp Dutiable

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 12, 1928.—Representative Brand, of Ohio proposes to make rag pulp dutiable under the tariff law and for that purpose he has just introduced a bill in the House to amend the Tariff Act of 1922 "by transferring rag pulp from the free list to the dutiable list." The bill, which has been referred to the House Committee on Ways and Means is as follows:

That paragraph 1651 of the Tariff Act of 1922 is amended to read as follows:

"PAR. 1651. Paper stock, crude, of every description, including all grasses, fibers, rags, waste, including jute, hemp, and flax waste, shavings, clippings, old paper, rope ends, waste rope, and waste bagging, and all other waste not specially provided for, including old gunny cloth, and old gunny bags, used chiefly for paper making, and no longer suitable for bags."

SEC. 2. Paragraph 1313 of the Tariff Act of 1922 is amended to read as follows:

"PAR. 1313. Rag pulp; papers and paper board and pulpboard, including cardboard and leatherboard or compress leather, embossed, cut, die cut, or stamped into designs or shapes, such as initials, monograms, lace, borders, bands, strips, or other forms, or cut or shaped for boxes or other articles, plain or printed, but not lithographed, and not specially provided for; paper board and pulpboard, including cardboard and leatherboard or compressed leather, laminated, glazed, coated, lined, printed, decorated, or ornamented in any manner; press boards and press paper, all the foregoing, 30 per cent ad valorem; test or container boards of a bursting strength above sixty pounds per square inch by the Mullen or the Webb test, 20 per centum ad valorem; stereotype-matrix mat or board, 35 per centum ad valorem; wall pockets, composed wholly or in chief value of paper, papier-mâché, or paper board, whether or not die cut, embossed, or printed lithographically, or otherwise; boxes, composed wholly or in chief value of paper, papier-mâché, or paper board, and not specially provided for; manufactures of paper, or of which paper is the component material of chief value, not specially provided for, all the foregoing, 35 per centum ad valorem."

SEC. 3. This Act shall take effect upon the day following its enactment.

For reliable running and average long life

LINDSAY FOURDRINIER WIRES

are unsurpassed

We make them for the largest and fastest machines.

Cylinder Wires All Sizes

The Lindsay Wire Weaving Co.

Collinwood Sta. CLEVELAND, OHIO

NOW!

PARIS BLACK EXTRA

in

FIBRE CONTAINERS

Our Paris Black Extra, made expressly for the paper industry, is now available in solid Fibre Containers, holding—four—12½ lb. Paper Bags. This represents 25% freight saving and convenience in storing and handling.

The HELLER & MERZ COMPANY
505 Hudson St., New York

287 Atlantic Ave. Boston
Chicago 146 W. Kinzie St.
Springfield, Mass. 40 Albert St.
Philadelphia 114 Market St
Factory—NEWARK, N. J.

For your rolls— use XXX Albany Grease

XXX Albany Grease is perfectly balanced for paper mill requirements—that's the right consistency to use when you require a high temperature grease. It's a 100% pure tallow compound. Lubricates thoroughly—never drips. Used in paper mills for 60 years. Try a can!

If you want an extra fine mineral oil lubricant, use Albany Pressure grease—soft, medium, hard, also graphite and transmission.

Always look for the Albany Grease Trade Mark —Refuse Substitutes.

Your dealer can supply you. If not, write us.

Trade Mark ADAMS COOK'S SONS, INC., 6 Varick St., N. Y.

ALBANY GREASE

Where "PALCO" Packing Lifts the Friction Load Off the Shaft.

Photograph of a Centrifugal Pump Shaft badly worn by working against flax packing which did not carry sufficient lubricant to prevent friction.

CUTNO PACKING

For pumps handling caustic soda and similar chemicals. Its lubricant can be relied upon to resist the cutting action of these chemicals, and to keep the pump shaft so perfectly lubricated as to avoid friction. To prove our claims let us send you a free working sample to test under your own conditions.

GREENE, TWEED & CO.
Sole Manufacturers
109 Duane St., New York

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 8, 1928

SUMMARY

Cigarette paper .....15 bls., 94 cs.
Wall paper .....205 bls., 18 cs.
Paper hangings .....61 bls.
Hanging paper .....5 cs.
News print .....1,885 rolls
Printing paper .....64 rolls, 57 cs.
Wrapping paper .....60 rolls, 19 bls., 64 cs.
Tissue paper .....75 cs.
Painted paper .....23 cs.
Silk paper .....3 cs.
Mould paper .....3 cs
Colored paper .....67 cs.
Decalcomania paper .....49 cs.
Photo paper .....11 cs.
Baryta coated paper .....268 cs.
Gold coated paper .....10 cs.
Metal paper .....23 cs.
Surface coated paper .....141 cs.
Aluminum paper .....50 cs.
Writing paper .....8 cs.
Emery paper .....188 bls.
Felt paper .....27 bls.
Note paper .....1 cs.
Straw board .....164 rolls
Miscellaneous paper.....140 rolls, 258 bls., 87 cs.

CIGARETTE PAPER

British American Tobacco Co., Majestic, Southampton, 64 cs.
Standard Products Corp., Ile de France, Havre, 30 cs.
Max Spiegel & Son, Roma, Genoa, 15 bls.

WALL PAPER

Universal Car Loading Co., Pres. Roosevelt, Bremen, 6 cs.
Heemsoth, Basse & Co., Karlsruhe, Bremen, 1 ble.
J. E. Bernard & Co., Lapland, Antwerp, 5 bls., 2 cs.
Prager Co., Inc., Lapland, Antwerp, 97 bls.
A. C. Dodman, Jr., Inc., Majestic, Southampton, 1 cs.
J. E. Bernard & Co., Ala, Rotterdam, 24 bls.
F. J. Emmerich, Cleveland, Hamburg, 28 bls., 2 cs.
R. F. Downing & Co., Minnesota, London, 16 bls., 4 cs.
F. J. Emmerich, Minnesota, London, 4 bls.
F. J. Emmerich, Baltic, Liverpool, 30 bls.
W. H. S. Lloyd & Co., Antonia, Liverpool, 3 cs.

PAPER HANGINGS

A. C. Dodman, Jr., Inc., Baltic, Liverpool, 61 bls.
A. C. Dodman, Jr., Inc., Antonia, Liverpool, 2 bls.

HANGING PAPER

A. L. Diament Co., Ile de France, Havre, 5 cs.

NEWS PRINT

Gilman Paper Co., Kungsholm, Gothenburg, 648 rolls.
Ossian Ray, Kunsholm, Gothenburg, 64 rolls.
A. S. Zabriskie, Muenchen, Bremen, 120 rolls.
Parsons & Whittemore, Inc., Muenchen, Bremen, 896 rolls.
Hudson Trading Co., Odensholm, Svartvik, 37 rolls.
Hudson Trading Co., Titania, Sweden, 120 rolls.

PRINTING PAPER

Judson Freight Forwarding Co., Karlsruhe, Bremen, 15 cs.
F. Henjes, Jr., Cleveland, Hamburg, 64 rolls.
Titan Shipping Co., Minnesota, London, 2 cs.
C. Steiner, Blommersdyk, Rotterdam, 8 cs.
E. Dietzgen & Co., Blommersdyk, Rotterdam, 32 cs.

WRAPPING PAPER

Fidelity Trust Co., Karlsruhe, Bremen, 60 rolls.
T. Barrett & Son, Kungsholm, Gothenburg, 19 bls.
Birn & Wachenheim, Layland, Antwerp, 64 cs.

TISSUE PAPER

Old Master Paper & Pulp Co., Cleveland, Hamburg, 61 cs.
F. L. Kramer & Co., Minnesota, London, 4 cs.
B. F. Drakenfeld & Co., Baltic, Liverpool, 4 cs.
W. J. Byrnes, Antonia, Liverpool, 6 cs.

PAINTED PAPER

American Exchange Irving Trust Co., Ile de France, Havre, 23 cs.

SILK PAPER

H. D. Catty & Co., Blommersdyk, Rotterdam, 3 cs.

MOULD PAPER

Phoenix Shipping Co., Blommersdyk, Rotterdam, 3 cs.

COLORED PAPER

S. Gilbert, Pres. Roosevelt, Bremen, 22 cs.
J. Beckhard, Pres. Roosevelt, Bremen, 43 cs.
S. Langsdorf & Co., Cleveland, Hamburg, 2 cs.

DECALCOMANIA PAPER

C. W. Sellers, Pres. Roosevelt, Bremen, 3 cs.
C. W. Sellers, Karlsruhe, Bremen, 3 cs.
C. W. Sellers, Cleveland, Hamburg, 8 cs.
B. F. Drakenfeld & Co., Baltic, Liverpool, 35 cs. (duplex).

PHOTO PAPER

J. H. Schroeder Banking Corp., Pres. Roosevelt, Bremen, 5 cs.
Medo Photo-Supply Co., Minnesota, London, 6 cs.

BARYTA COATED PAPER

Globe Shipping Co., Pres. Roosevelt, Bremen, 99 cs.
Globe Shipping Co., Muenchen, Bremen, 75 cs.
Globe Shipping Co., Karlsruhe, Bremen, 43 cs.
J. H. Schroeder Banking Corp., Karlsruhe, Bremen, 51 cs.

GOLD COATED PAPER

F. Murray Hill, Karlsruhe, Bremen, 8 cs.
Richard Shipping Co., Muenchen, Bremen, 2 cs.

METAL PAPER

Hensel, Bruckman & Lorbacher, Muenchen, Bremen, 23 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Lapland, Antwerp, 51 cs.
Gevaert Co. of America, Lapland, Antwerp, 75 cs.
Whiting & Patterson Co., Inc., Cleveland, Hamburg, 6 cs.
Globe Shipping Co., Cleveland, Hamburg, 9 cs.

ALUMINUM PAPER

H. D. Catty Co., Lapland, Antwerp, 50 cs.

WRITING PAPER

The Eleto Co., Aquitania, Southampton, 1 cs.
American Express Co., Aquitania, Southampton, 1 cs.
Coenca Morrison Co., Ile de France, Havre, 6 cs.

EMERY PAPER

Independent Forwarding Co., Pres. Roosevelt, Bremen, 188 bls.

FELT PAPER

Heemsoth, Basse & Co., Ala, Rotterdam, 27 bls.

NOTE PAPER

H. Reeve Angel & Co., Inc., Tuscania, London, 1 cs.

STRAW BOARD

A. Vuyk, Blommersdyk, Rotterdam, 164 rolls.

MISCELLANEOUS PAPER

W. H. S. Lloyd & Co., Aquitania, Southampton, 2 cs.
Vernon Bros. Co., Transylvania, Glasgow, 50 cs.
National Corrugated Paper Corp., Schenectady, Gothenburg, 12 bls.
C. K. MacAlpine & Co., Kungsholm, Gothenburg, 127 bls.
C. Schleicher Schull Co., Cleveland, Hamburg, 4 cs.
Quality Art Novelty Co., Ile de France, Havre, 5 cs.
Standard Products Corp., Ile de France, Havre, 20 cs.
Guibout freres, Ile de France, Havre, 3 cs.
Globe Shipping Co., Ile de France, Havre, 3 cs.
Heemsoth, Basse & Co., Blommersdyk, Rotterdam, 36 bls.
H. Reeve Angel & Co., Inc., Odensholm, Gothenburg, 83 bls., 140 rolls.

RAGS, BAGGINGS, ETC.

Banco Com'l Italiane Trust Co., Cabo Espartel, Genoa, 118 bls. bagging.
French American Banking Corp., Cabo Espartel, Genoa, 59 bls. rags.
Star Woolen Co., Innoko, Antwerp, 33 bls. rags.
French American Banking Corp., Liberty Land, Leghorn, 91 bls. rags.
Castle & Overton, Inc., Transylvania, Glasgow. 25 bls. paper stock.
Darmstadt, Scott & Courtney, Transylvania, Glasgow, 13 bls. rags.
Star Woolen Co., MacKeesport, Dunkirk, 9 bls. rags.
J. Cohen Son, MacKeesport, Havre, 50 bls. rags.
B. D. Kaplan, MacKeesport, Havre, 60 bls. rags.
American Express Co., MacKeesport, Havre, 33 bls. rags.
State Bank & Trust Co., Muenchen, Bremen, 13 bls. rags.
Bank of United States, Ala, Rotterdam, 21 bls. rags.
A. W. Fenton, Inc., Ala, Rotterdam, 313 bls. rags.
E. J. Keller Co., Inc., Ala, ——, 178 bls. rags.
State Bank & Trust Co., Cleveland, Hamburg, 23 bls. rags.
Overton & Co., Alberta, Venice, 95 bls. rags.
Banco Com'l Italiane Trust Co., Livenza, Genoa, 60 bls. bagging.
Banco Com'l Italiane Trust Co., Livenza, Leghorn, 61 bls. rags.
Castle & Overton, Inc., Baltic, Liverpool, 105 bls. paper stock.
Darmstadt, Scott & Courtney, Blommersdyk, Rotterdam, 65 bls. bagging.
A. Hurst & Co., Blommersdyk, Rotterdam, 14 bls. rags.
Bank of The Manhattan Co., Blommersdyk, Rotterdam, 33 bls. rags.
Castle & Overton, Inc., Blommersdyk, Rotterdam, 118 bls. rags.
Chase National Bank, Amasis, Hamburg, 60 bls. rags.
Chase National Bank, Amasis, Hamburg, 38 bls. flax clippings.
W. Schall & Co., Amasis, Hamburg, 141 bls. cotton waste.
E. J. Keller Co., Inc., Amasis, ——, 15 bls. flax waste.
French American Banking Corp., Tergenea, Bari, 42 bls. rags.
V. Galaup, Vincent, Dunkirk, 26 bls. rags.
Katzenstein & Keene, Inc., Vincent, Dunkirk, 190 bls. rags.
V. Galaup, Vincent, Havre, 85 bls. rags.
V. Galaup, Vincent, Havre, 79 bls. strings.
Castle & Overton, Inc., Vincent, Havre, 115 bls. bagging.
Castle & Overton, Inc., Oakspring, Buenos Aires, 54 bls. rags.
E. J. Keller Co., Inc., Deutschland, ——, 2 bls. linen threads.
E. J. Keller Co., Inc., Carbet, ——, 46 bls. new rags.
E. J. Keller Co., Inc., Karachi Maru, ——, 61 bls. new rags.
E. J. Keller Co., Inc., Karachi Maru, ——, 48 bls. old linens.
E. J. Keller Co., Inc., Karachi Maru, ——, 14 bls. threads.
E. J. Keller Co., Inc., Karachi Maru, ——, 40 bls. flax waste.

OLD ROPE

Brown Bros. & Co., Transylvania, Glasgow, 25 coils.
American Exchange Irving Trust Co., Cleveland, Hamburg, 57 coils.

CASEIN

Champion Coated Paper Co., Vauban, Buenos Aires, 1,302 bags.
Chemical National Bank, Vauban, Buenos Aires, 417 bags.
Chemical National Bank, Com'l Trader, Buenos Aires, 417 bags, 25,020 ks.
Atterbury Bros., Inc., Com'l Trader, Buenos Aires, 834 bags, 50,040 ks.
National City Bank, Western World, Buenos Aires, 84 bags.
Kalbfleisch Corp., Western World, Buenos Aires, 834 bags.

WOOD PULP

Atterbury Bros., Inc., Fred. VIII, Oslo, 1,000 bls. wood pulp, 200 tons.
E. M. Sergeant & Co., Fred. VIII, Oslo, 300 bls. wood pulp, 50 tons.
M. Gottesman & Co., Inc., Kungsholm, Gothenburg, 500 bls. sulphite.
E. M. Sergeant & Co., Kungsholm, Gothenburg, 350 bls. sulphite.
E. M. Sergeant & Co., Kungsholm, Gothenburg, 897 bls. dry soda pulp.
American Exchange Irving Trust Co., Muenchen, Bremen, 300 bls. wood pulp.
American Exchange Irving Trust Co., Cleveland, Hamburg, 121 bls. wood pulp, 25 tons.
Castle & Overton, Inc., Amasis, Hamburg, 1,862 bls. wood pulp, 279 tons.
E. J. Keller Co., Inc., Amasis, ——, 1,288 bls. wood pulp, 200 tons.
Bulkley, Dunton & Co., Amasis, ——, 2,000 bls. wood pulp, 406 tons.
Scandinavian Pulp Agency, Inc., Odensholm, Skutskar, 3,780 bls. wood pulp.
Hudson Trading Co., Odensholm, Skutskar, 500 bls. wood pulp.
Woodpulp Service Corp., Odensholm, Gothenburg, 125 bls. sulphite.
M. Gottesman & Co., Inc., Odensholm, Gothenburg, 625 bls. wood pulp.
Parsons & Whittemore, Inc., Odensholm, Gothenburg, 310 bls. sulphite.
Castle & Overton, Inc., Odensholm, Svartvik, 150 bls. sulphite.

(Continued on page 70)

Get more business from Delicatessen Stores

PAPRUS DISHES will help you. They hold their shape like wood—yet sell for less than paper. Waterproof—no folds—no staples. Moulded in one piece from pulp. White—sanitary—attractive! More and more dealers are using them. Write for price list.

PAPRUS
DISHES

KEYES FIBRE COMPANY, INC.
General Sales Offices: GRAYBAR BLDG., NEW YORK
Factory: Waterville, Me. JOHN M. HART COMPANY, INC., *Manager of Sales*

INTERNATIONAL ACCEPTANCE BANK
INCORPORATED

International
Banking Transactions

Commercial Letters of Credit
Collections Foreign Exchange
Investment Securities
Bullion and Currency

PAUL M. WARBURG, *Chairman* F. ABBOT GOODHUE, *President*

52 Cedar Street, New York

BROWN COMPANY'S ALPHA GRADES

of Purified Cellulose Fibre representing some of the valuable results of our many years of research in cellulose chemistry.

SUPER ALPHA

for strength in Tear, Fold and Mullen. Super Alpha equals the higher grades of rags in the manufacture of fine papers.

EASY-BEATING ALPHA

This is a grade developed for mills of limited beating capacity. While not giving results equal to Super Alpha, it produces wonderful paper on short beating.

REGULAR ALPHA

This is a grade midway between Super and Easy-Beating.

Use ALPHA for Quality

BROWN COMPANY FOUNDED 1892 Portland, Maine

ENGINEERS

Power plants—additions—complete paper mill projects

ONE great organization—a specialist in paper mill engineering and construction—designs, builds, rebuilds, reports, appraises, for many of the most important concerns in the paper industry. Plans, price, construction work, delivery date, owner's satisfaction, all guaranteed.

Ferguson customers include:

Hinde & Dauch Co.
A. P. W. Paper Co.
Kraft Pulp and Paper Co.
Chillicothe Paper Co.
Warren Mfg. Co.
Spencer-Wynne Paper Products Company
Bennington Wax Paper Company
Oswego Falls Corp.
Fairfield Paper Co.

THE H. K. FERGUSON COMPANY
Hanna Bldg. • Cleveland, Ohio • Phone: Cherry 9966
New York • Detroit • Birmingham • Tokio, Jap—

Ferguson
ENGINEERS

Imports of Paper and Paper Stock

(*Continued from page 68*)

Johanson, Wales & Sparre, Inc., Odensholm, Svartvik, 425 bls. sulphite.
Bulkley, Dunton & Co., Odensholm, ——, 1,000 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Odensholm, Wifstavarf,, 625 bls. sulphite.
Scandinavian Pulp Agency, Inc., Odensholm, Wifstavarf, 2,500 bls. sulphate.
M. Gottesman & Co., Inc., Odensholm, Soraker, 450 bls. sulphite.
Johanson, Wales & Sparre, Inc., Odensholm, Soraker, 2,825 bls. sulphite.
Price & Pierce, Ltd., Odensholm, Gothenburg, 1,375 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Titania, Sweden, 5,030 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Titania, Sweden, 2,500 bls. sulphate.
Scandinavian Pulp Agency, Inc., Titania, Sweden, 1,875 bls. sulphite.
Pagel, Horton & Co., Titania, Sweden, 2,250 bls. sulphite.
Chase National Bank, Titania, Sweden, 200 bls. sulphite.
Castle & Overton, Inc., Titania, Sweden, 150 bls. sulphite.
Johanson, Wales & Sparre, Inc., Titania, Sweden, 275 bls. sulphite.
Bulkley, Dunton & Co., Titania, ——, 2,000 bls. wood pulp.

WOOD PULP WADDING

Bendix Paper Co., Cleveland, Hamburg, 60 bls.

WOOD DUST

The Burnet Co., Kungsholm, Gothenburg, 847 bags.

WOOD PULP BOARDS

C. K. MacAlpine & Co., Kungsholm, Gothenburg, 19 bls.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 8, 1928

Congoleum Nairn Co., Innoko, Antwerp, 669 bls. rags.
Castle & Overton, Inc., Innoko, Antwerp, 2 bls. rags.
Congoleum Nairn Co., MacKeesport, Dunkirk, 745 bls. rags.
Congoleum Nairn Co., MacKeesport, Dunkirk, 12 bls. bagging.
Congoleum Nairn Co., MacKeesport, Havre, 671 bls. rags.
E. J. Keller Co., Inc., Binnendyk, ——, 1,200 bls. wood pulp.
E. J. Keller Co., Inc., Westfalen, ——, 331 bls. wood pulp.
Castle & Overton, Inc., Binnendyk, Holland, 342 bls. rags.
Scandinavian Pulp Agency, Inc., Titania, Sweden, 2,500 bls. sulphate.
Price & Pierce, Ltd., Titania, Sweden, 1,600 bls. sulphite.
Pagel, Horton & Co., Inc., Titania, Sweden, 2,625 bls. sulphite.
Pagel, Horton & Co., Inc., Titania, Sweden, 2,250 bls. sulphate.
Equitable Trust Co., Titania, Sweden, 2,875 bls. sulphate.
Bulkley, Dunton & Co., Titania, Sweden, 3,150 bls. sulphite.

NORFOLK IMPORTS

WEEK ENDING DECEMBER 8, 1928

E. Butterworth & Co., Inc., Innoko, Antwerp, 110 bls. bagging.
Scandinavian Pulp Agency, Inc., Titania, Sweden, 2,500 bls. sulphate.
Ossian Ray, Titania, Sweden, 83 rolls news print.
Hudson Trading Co., Titania, Sweden, 150 rolls news print.

BOSTON IMPORTS

WEEK ENDING DECEMBER 8, 1928

French American Banking Corp., Ryufuku Maru, Leghorn, 120 bls. rags.
International Purchasing Co., Liberty Land, Genoa, 195 bls. old rope.
French American Banking Corp., Liberty Land, Naples, 81 bls. rags.
C. B. Richard & Co., Liberty Land, Marseilles, 149 bls. rags.
Bulkley, Dunton & Co., Ala, ——, 278 bls. wood pulp, 61 tons.
M. Gottesman & Co., Inc., Tergestea, Sebenico, 3,200 bls. wood pulp.
J. Andersen & Co., Tergestea, Trieste, 1,360 bls. wood pulp.
Castle & Overton, Inc., Westpool, Germany, 51 bls. rags.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 8, 1928

Castle & Overton, Inc., Liberty Land, Leghorn, 86 bls. rags.
French American Banking Corp., Liberty Land, Leghorn, 199 bls. rags.
W. Schall & Co., Carbet, Havre, 813 bls. rags.
Equitable Trust Co., Carbet, Havre, 48 bls. rags.
National Bank of Commerce, Carbet, Havre, 24 bls. new cuttings.
National Bank of Commerce, Carbet, Havre, 910 bls. rags.
Union Bank & Trust Co., Carbet, Havre, 63 bls. old rope.
Italian Shipping Agency, Livenza, Genoa, 131 bls. rags.
French American Banking Corp., Livenza, Naples, 74 bls. rags.
Pagel, Horton & Co., Inc., Odensholm, Skutskar, 500 bls. sulphate.
Equitable Trust Co., Odensholm, Skutskar, 1,000 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Odensholm, Skutskar, 2,900 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Odensholm, Gothenburg, 508 bls. kraft pulp.
M. Gottesman & Co., Inc., Odensholm, Gothenburg, 625 bls. sulphite.
Parsons & Whittemore, Inc., Odensholm, Gothenburg, 600 bls. sulphite.
E. M. Sergeant & Co., Odensholm, Gothenburg, 200 bls. sulphite.
Johanson, Wales & Sparre, Inc., Odensholm, Gothenburg, 300 bls. wood pulp.
Johanson, Wales & Sparre, Inc., Odensholm, Svartvik, 1,925 bls. sulphite.
M. Gottesman & Co., Inc., Odensholm, Svartvik, 300 bls. sulphite.
M. Gottesman & Co., Inc., Odensholm, Soraker, 500 bls. sulphite.
Scandinavian Pulp Agency, Inc., Odensholm, Wifstavarf, 1,250 bls. sulphite.
Salomon Bros. & Co., Vincent, Dunkirk, 341 bls. rags.
Castle & Overton, Inc., Vincent, Havre, 195 bls. rags.
V. Galaup, Vincent, Havre, 215 bls. rags.
A. Hurst & Co., Vincent, Havre, 24 bls. rags.
G. Mathes & Co., Vincent, Havre, 49 bls. rags.
E. J. Keller Co., Inc., Vincent, ——, 51 bls. rags.
E. J. Keller Co., Inc., K. I. Luckenbach, ——, 5 bls. rags.
Castle & Overton, Inc., Carnia, Italy, 81 bls. rags.
Castle & Overton, Inc., Zenada, Germany, 1 cs. wire.
Castle & Overton, Inc., Chickasaw, England, 477 bls. rags.
Castle & Overton, Inc., Crefeld, Germany, 75 bls. rags.
Castle & Overton, Inc., Kenbane Head, Belgium, 169 bls. rags.
Castle & Overton, Inc., London Merchant, England, 78 bls. rags.
Castle & Overton, Inc., Ausvard, Spain, 176 bls. rags.

New York Papermakers To Meet

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., December 10, 1928.—The first Sunday in April has been fixed for the next conference of Northern New York paper makers at which business pertaining to new wage and working agreements as well as other business will be transacted. The meeting will be held at Gouverneur and the annual election of officers will take place at that time. Frank P. Barry is now president of the conference. William R. Smith, president of the International Brotherhood of Papermakers, has gone to Quebec, where he will take up matters relative to a company starting operations in a mill at Beaupre. Mr. Smith had been in Albany only a few days when he received the wire calling him to Canada. Frank P. Barry and Matthew Burns, who had been attending the A. F. of L. convention in New Orleans as delegates, returned last week to this city.

Go With Crown Zellerbach Co.

George W. Charters and Stanley W. Blanchard of the E. B. Eddy Company, Ltd., of Hull, Que., have resigned their positions with that company to join the staff of the Crown Zellerbach Company, who are the largest manufacturers of paper on the Pacific Coast.

Mr. Charters was general superintendent at the news and pulp mill of the Eddy Company, and Mr. Blanchard was superintendent at the ground wood, sulphite and bleach plants.

Pulp and Paper Making Courses

The Joint Textbook Committee of the Institute of Industrial Arts School of Pulp and Paper Making, Gardenvale, Quebec, have just issued an interesting booklet describing the facilities for correspondence and class instruction in the manufacture of pulp and paper, available in the United States and Canada.

The booklet contains extracts from the syllabus of courses offered by the Institute of Industrial Art, the University of Wisconsin and the Massachusetts Division of University Extension.

Further information in regard to textbooks and opportunities for study will be gladly furnished by the committee upon application to any of its members, or to R. S. Kellogg, Secretary, 342 Madison Avenue, New York.

Mazer Paper Mills Increase Output

PHILADELPHIA, Pa., December 10, 1928.—The Mazer Paper Mills, of Lansdowne, Pa., have installed ten additional dryers on their number two machine, and some other additional equipment which has resulted in an increase in production of seventy-five tons a month and have further improved the quality of their product. O. E. Randolph, who has recently been made superintendent, expects a still further increase in production. A ready market has been found for the increased output of the mill.

THE

"TRIMBEY-SHEVLIN"

A NEW PULP—

Screens 80 to 100 Tons Ground Wood per Day
Consistency—Screened Stock 0.8% to 1% Air-Dry
Requires only 25 to 30 Horse Power
Employs Only One-Half Usual Number of Deckers
Entirely Self-Cleaning
No Showers, No Thinning Water, No Wash Water.

A Pulp Screen Which is a Worthy Companion to The Trimbey Automatic Consistency Regulator and The Trimbey and Tibbitts Proportioning and Metering System

Ask Us

TRIMBEY MACHINE WORKS
Glens Falls, N. Y.

Made in Canada? Yes.

Are you troubled by sticking at the dryers?

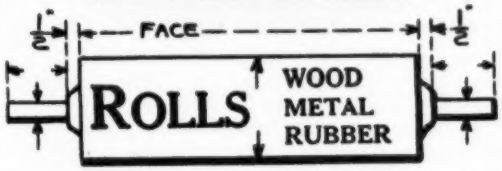
Many mills have found that by using "S" Brand silicate of soda, the sheet runs through the dryers without a hitch. Silicate of soda helps to compact the surface fibers, and so prevents them from sticking to the dryers. It is also possible to speed up the machine when silicate is used.

Let us help you to overcome sticking.

Philadelphia Quartz Co.

General Offices: Philadelphia
Chicago Office: 205 W. Wacker Dr.

RODNEY HUNT



ADOPTED AS STANDARD BY PROMINENT MILLS

"Shafts Do Not Work Loose Yet they are light weight"

That's the verdict of the trade after using "Shaftite" Wood Felt Rolls.

When you need Rolls for any Machine, Write, Wire or 'Phone

RODNEY HUNT MACHINE CO.

63 Maple Street, Orange, Mass., U. S. A.

Sulphur

A FIRST REQUISITE

in

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
41 E. 42nd Street New York City
Mine Gulf, Matagorda County, Texas

Paper Mill Stocks and Bonds

Quoted by Taylor & White, 45 Wall street, New York City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	ASKED
Abitibi Power & Paper 5s, 1943	90	91
Abitibi Power & Paper 6s, serially to 1934	100	102
American Writing Paper 6s, 1947	81	87
Bastrop Pulp & Paper 6½s, 1940	103	105½
Bedford Pulp & Paper 6½s, 1942	97	100
Belgo-Canadian Paper 6s, 1943	100	103
British-Columbia Pulp & Paper 6s, 1950	89	92
Brown Paper Mills Serial 6s, 1941	97	100
Brown Company 5½s, 1946	98	101
Bryant Paper 6s, 1942	98	101½
Canadian Paper Board 7s, 19337	97	99½
Cape Breton Pulp & Paper 6s, 1932	103	...
Celotex Company 6s, 1929	95	99
Celotex Company 6½s, 1939	100	102
Celotex Company of Chicago, Debenture 6s, 1936	95	98
Central Paper Company Serial 6½s, 1942	86	89
Central Paper 7s, 1934	78	...
Champion Coated Paper Serial 6½s, 1934	100	...
Champion Coated Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 8s, 1930	95	...
Champion Paper Corp. 6s, 1945	95	98
Container Corp. of America Debenture 6s, 1936, ex-warrants	101	104
Continental Paper Products 6½s, 1943	90	99
Cornell Wood Products 7½s, 1937	103	...
Crown Willamette 6s, 1951	101	102
Dells Paper & Pulp Serial 6s, 1938	95	98
Dixon Board Mills Serial 6s, 1942	80	...
Donnaconna Paper 5½s, 1948	93	...
Eastern Manufacturing Co. 7s, 1938	97	100
Escanaba Paper Serial 6s, 1939	98	100
Escanaba Paper 6½s, 1935	96	99
Filer Fibre Serial 7s, 1935	90	95
Fort Irange Paper 7s, 1942	101	...
Fort William Paper 6s, 1946	100	104
Fraser Company 6s, 1950	103	105
Hammermill Paper Serial 6s, 1939	100	...
Hawley Pulp & Lumber 6s, 1946	96	...
Hawthorne Paper Company 6s, 1937	80	...
Hoberg Paper & Fibre 7s, 1937	94	97
Industrial Fibre Corp. Debenture 8s, 1933	100	...
Itasca Paper & Prairie River Power Serial 5½s, 1938	99½	...
Itasca Paper & Prairie River Power Serial 6s, 1938	99	...
Jessup & Moore First 6s, 1945	83	90
Kalamazoo Vegetable Parchment 6s, 1938	99	101
Lake Superior Paper 6s, 1941	105	108
Marathon Paper Mills Serial 5½s, 1942	99	101
Marinette & Menominee 7½s, 1936	103	105
Mead Pulp & Paper 5% Notes Serially, 1937	95	100
Mead Fibre 7s, 1937	97	101
Minnesota Ontario Paper Serial 6s, 1945	97½	100
Murray Bay Paper Serial 6½s, 1947	102	105
Munising Paper Serial 6s, 1936	98	...
Nekoosa Edwards Paper 6s, 1928-42	96	...
Ontario Pulp & Paper 6s, 1931	108½	110½
Orono Pulp & Paper 6s, 1943	99	...
Orono Pulp & Paper 5s, 1941	96½	...
Oswego Falls Corp. 6s, 1941	99	102
Parker-Young Company 6½s, 1944	98	100
Paterson Parchment Paper 6s, 1938	101	103
Penobscot Chemical Fibre 6s, 1942	102	105
Port Alfred Pulp & Paper 5½s, 1947	98	100
Price Brothers 6s, 1943	105	...
Provincial Paper 5½s, 1947	98½	...
Queen City Paper 7s, 1933	98	...
River Raisin Paper 6s, 1936	98	100
Riordan Pulp & Paper 6s, 1942	102	104
Rolland Paper 6s, 1937	99	101
St. Croix Paper Serial 5s, 1937	99	...
St. Helen Pulp & Paper 6½s, 1931	99	102
St. Maurice Valley Corp. 6s, 1945	101	104
St. Maurice Valley Corp. 5½s, 1947	98½	100½
St. Regis Paper of Canada 6s,, 1931	100	101½
St. Regis Paper of Canada 6½s, 1934	100	102
Smith (Howard) Paper Mills 7s, 1941	104	106
Spanish River Pulp & Paper 6s, 1931	108	110
Stevens-Thompson Paper 6s, 1942	94	96
Taggart Brothers 6s, 1944	95	100
Tait Paper & Color Industries 6s, 1934	88	92
Ticonderoga Pulp & Paper 5s, 1930	94	...
Ticonderoga Pulp & Paper 6s, 1940	100	102
Tomahawk Kraft Paper 6s, 1938	98	...
Tomahawk Pulp Paper 7s, 1932	99	...
Tonawanda Paper 5½s, Series 1941	99	102
Union Bag & Paper Power 6s, 1932	98	100
United Wall Paper Factories 6s, 1947	96	99
Warren (S. D.) Company 6s, 1945	103	105
Watab Paper 6½s, 1942	102	...
Waterway Paper Products 6s, 1931	100	101½
Wayagamack Pulp & Paper 6s, 1951	103	105
Westfield River Paper Serial 7s, 1943	89	93
Whitmer-Parson Pulp & Lumber 8s, 1938	20	25
Whitaker Paper 7s, 1942	108	110

STOCKS	BID	ASKED
American Box Board, Pfd.	9¼	10¼
American Box Board, Com.	9¼	10¼
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P. Pfd.	65	75
Brompton Pulp & Paper, 8% Pfd.	100	...
Champion Fibre, 7% Pfd.	108	110
Diem & Wing, 7% Pfd.	92	97
Eastern Mfg. Co. 1st Pfd.	55	...
Great Northern Paper, Com.	75	78
Hammermill Paper, new 6% Pfd.	100	...
Hinde & Dauch, Com.	125	None Off.
Hinde & Dauch, 6% Pfd.	102	None Off.
Holyoke Card & Paper	160	None Off.
Marathon Paper Mills, Com.	150	...
Mengel Co., Pfd.	102	104
Midwest Box Co., 8% Pfd.	98	102
Midwest Box Co., 6% Pfd.	95	99
Louis De Jonge Co., 7% Pfd.	94	97
Oxford Papers, Com.	195	...
Oxford Paper Co., Pfd.	108	111
Penobscot Chemical Fibre, Com.	80	...
Richardson Co., Com.	170	...
Sabin Robbins Paper Co., 8% Pfd.	105	110
St. Croix Paper	155	...
St. Regis Paper Co., 7% Cum. Pfd.	105	108
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper Company	55	57
West Virginia Pulp and Paper, Pfd.	100	103
Whittaker Paper, 7% Cum. Pfd.	105	None Off.

NEWS PRINT PRICES TO BE LOWER

(*Continued from page 23*)

suitable lines, new to Canadian industry, would be introduced from time to time. Rhodes (Canada), Ltd., is a subsidiary of the Walmsley concern, formed to develop in Canada sheet-metal working machinery under patents purchased from Charles J. Rhodes of Joseph Rhodes & Co., Wakefield, England.

Fraser Companies to Issue New Shares

Shareholders of Fraser Companies, Ltd., of record December 19th, 1928, will be offered additional common stock on the basis of one share for every fifteen held at that date. The subscription price of the new shares is to be $50 per share, payable on January 31st, 1929, at which time the subscription privilege will expire. This gives rights of a value of approximately $2.75 each.

It is anticipated that warrants will be mailed to shareholders on or about December 20th. Share certificates for the new stock will be issued to subscribers on February 1st next, but no assignable receipts for prepaid subscriptions will be issued.

The above is subject to approval by Supplementary Letters Patent of the increase in capital authorized at the special general meeting held on December 4 last.

With the new board mill at Madawaska in operation, and production from the new catalog machine at Edmunston starting in the near future, the outlook for future earnings is bright. The company's new bleached sulphite pulp mill at Athol, N. B., will have a daily capacity of some 150 tons, and it is expected that this mill will be completed so that operations may be begun before the close of 1929.

Chandler Mills to be Auctioned

The old Chandler mills, the property of the St. Lawrence Pulp and Lumber Corporation, now in bankruptcy, are to be sold by auction by the trustees on January 9 next. The assets include timber limits and a sulphite fiber mill having a rated capacity of 300,000 lbs. daily. The mills are situated at Chandler, Gaspe County, Quebec.

Cutler-Hammer Atlanta Office Moves

The Atlanta office of the Cutler-Hammer Manufacturing Company, of Milwaukee, Wis., has been moved to 150 Peters street, S.W., Atlanta, Georgia. In addition to sales and engineering service on motor control apparatus and wiring devices, the new location provides warehouse facilities where many types of standard devices will be carried in stock for direct shipment to customers in that territory. This service has been provided to anticipate the requirements of the Cutler-Hammer customers because of the increasing electrical power application to industry in this section of the country. A. C. Gibson is manager in charge of the Atlanta office.

Robins to Handle Naval Stores In St. Louis

CINCINNATI, Ohio, December 10, 1928.—P. E. Calo, vice-president of the General Naval Stores Company, Inc., and their district manager at Chicago, spent some time recently visiting the trade in St. Louis, and while there arranged for the appointment of G. S. Robins & Co. to handle naval stores products under his supervision in St. Louis territory. The arrangement becomes effective December 1.

These EVERDUR FITTINGS
resist corrosion

SCHUTTE & KOERTING

Bulletin 7E gives Complete Information

1255 N. 12th St. PHILADELPHIA, PA.

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED
and
MACHINE FINISHED BOOK
and LITHOGRAPHIC
PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

also

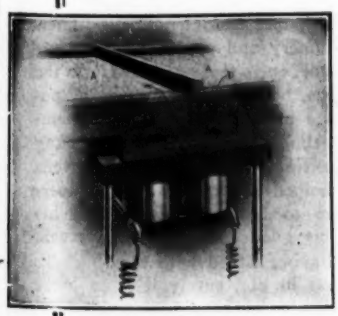
Bleached Spruce Sulphite and Soda, Kraft Pulp

200 Fifth Avenue New York — 732 Sherman Street Chicago
503 Market St., San Francisco, Cal.
122 East 7th St., Los Angeles, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

WOODPULP AGENTS

PRICE & PIERCE, Ltd.,

17 EAST 42ND ST.
NEW YORK



INSULATING PAPERS

Are you making paper for insulating purposes? If so, our *Type B Iron Extractors* are a necessary part of your equipment.

Hundreds of these extractors are in use in the United States, Canada, and Europe. Write us for Bulletins and full data.

THE ROLAND T. OAKES CO.

Electrical Specialists Holyoke, Mass. *Established 1885*

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, December 12, 1928.

Trading in the local paper market was fairly active during the past week. The number of orders booked may be considered satisfactory taking into account the approach of the inventory season. Quotations on most of the grades of paper remained unchanged and former levels are being maintained, in most instances. Sales forces of the leading paper organizations are busily engaged in winding up an excellent year.

Demand for news print paper is heavy and stocks are being freely absorbed by the publishers. News print manufacturers are to confer again. It is understood that, although an agreement on production has been reached, the producers have not yet made a decision on contract prices for the forthcoming year. Notwithstanding this uncertainty, a fair volume of contract business has already been booked for 1929.

Conditions in the paper board market are unchanged. Many orders have been booked at the lower figures recently quoted by some of the mills on news and chip board, but the market is anticipated to return to normalcy before long, in the opinion of close observers. The fine paper market is exhibiting a strong undertone and tissues are in seasonal request. The coarse paper market is practically unchanged. Wrapping paper is enjoying an excellent holiday demand.

Mechanical Pulp

Steadiness prevailed in the ground wood market. With slightly decreased production, offerings have been somewhat limited and prices tend to become firmer. Stocks on hand are reported to be lower than at this time last year and the outlook for the future is brighter than for some time past.

Chemical Pulp

No radical changes were recorded in the chemical pulp market during the past week. Both imported and domestic grades are in normal request for the season. Bleached sulphite is still in an exceptionally strong position and producers are well sold ahead. Kraft is in steady demand. Prices are generally unaltered and there is not much talk of concessions around.

Old Rope and Bagging

Both imported and domestic old rope continue moderately active. Manila rope is in persistent request. Prices are holding to former levels, in most instances. The bagging market is in a fairly sound position, although some purchasers appear to be awaiting the turn of the year before replenishing their supplies. Prices remain unaltered.

Rags

Some slight improvement was noticed in the domestic rag market. The roofing grades were in better request than of late, while cotton cuttings continue to move in good volume for the time of the year. The foreign rag market is rather quiet at present. Prices, however, are at present holding up as well as anticipated.

Waste Paper

The paper stock market is displaying sustained strength. Book stock is in steady request and prices of the various grades are holding to former levels without difficulty. Old Kraft machine compressed bales continue to move in good volume. The grades of paper stock used in the board mills are still in active demand, despite fluctuations in that branch of the industry.

Twine

With wrapping paper in heavy demand, due to holiday requirements, the twine market is exhibiting a strong undertone at the present time. The various grades of twine will probably be in excellent request until the end of the year, at least. Prices are generally holding to schedule and shading is therefore infrequent.

Frank J. McGovern Dead

Forty years is a long period in the life of any man, the business life of most men is not so long as this, but forty years covers just about the time of the close association with the paper industry of Frank J. McGovern, whose death occurred at his home in Albany on December 9.

Graduating from the Albany High School in 1884, he became an accountant; not very long after that accepting a position with the Acme Felt Company of Albany, makers of woolen felts for paper manufacturers. When this business was discontinued, he accepted a similar position with Boynton & Wagner of East Aurora, N. Y. Sometime later their mill was burned and Mr. McGovern in 1896 became associated with F. C. Huyck & Sons of Albany, N. Y. From that time he had been representative of this company in the eastern part of the United States, in Canada, and in several European countries, and for several years had been a director of F. C. Huyck & Sons, and one of the most valued members of that well known organization.

In his wide travels, Mr. McGovern made hosts of acquaintances and a very great many warm friends. He knew most of the pioneers of the paper industry in this country and in Canada, and followed the great development from the time when paper manufacturing was confined largely to a few Eastern states and three or four states in the mid west, to the time when it had spread to the Pacific Coast, in Canada from Newfoundland to the extreme northwest, and to many of the Southern states.

He was a close student of the paper making industry; knew the latest developments in machinery and plants. There were numbered among his friends not only the executives of the great paper making organizations, but men in all sorts of positions. Any man who had once met him seemed to remember him and have a friendly feeling for him. Many a young man just starting in a new position, owes to Mr. McGovern an encouraging word that has helped him on his way. Superintendents with problems came to him for advice, and his cheerful optimism, as well as his good judgment, always sent a man away feeling better for having talked with him.

If anything counts for success in life, surely it is to leave such a record of sympathetic, friendly interest in all with whom one's ways have crossed.

STANDARD SELF-ALIGNING
3 Important Features
Rustproof Plates
Self Aligned Plates
Self Aligned Rivets
Write for Samples
The BOURNE-FULLER CO.
UPSON WORKS UNIONVILLE, CONN.
3 BELT FASTENERS

Vulcalock
Products
for the Paper Industry
Write for Bulletin 9700
THE B. F. GOODRICH RUBBER COMPANY
Established 1870 Akron, Ohio

Pulp and Paper Mills, Power Plants, Chemical Plants
Engineering Design
Construction Supervision
Mechanical Equipment
Surveys
Investigations
Management
Process Development
Waste Utilization
Fuel Economy
Valuations
Arthur D. Little, Inc.
Chemists : Engineers : Managers
30 CHARLES RIVER ROAD CAMBRIDGE, MASS.

C. K. WILLIAMS & CO. ANCHOR BRAND DRY COLORS AND FILLERS EASTON, PA. U.S.A.
Red
Brown
Yellow
} Oxides
Talc
Yellow Ochres,
Umbers, Agalite
C. K. Williams & Company
EASTON, PA.

H. S. TAYLOR
Consulting Engineer
Member Am. Soc. C. E.—Member Am. Soc. M. E
Member Eng. Inst., Can.—Member A. I. E. E.
PULP, PAPER, AND FIBRE MILLS
HYDRO-ELECTRIC AND STEAM
POWER PLANTS
PLANS-SPECIFICATIONS-EVALUATIONS
REPORTS - CONSULTATIONS
Jefferson St. Arcade
Dayton, O.
Guarantee Bldg.
Montreal, P. Q.

GEORGE F. HARDY
M. AM. SOC. C. E. M. AM. SOC. M. E
M. ENG. INST. CAN.
Mill Architect and Consulting Engineer
Langdon Building, 309 Broadway
New York
SPECIALTY
Paper, Pulp and Fibre Mills
Water Power Developments
Steam Power Plants
Plans and Specifications
Evaluations, Reports
Consultation
Cable Address:
"Hardistock"
A B C, 5th Edition
Bedford McNeill
Western Union
Bentley's

KELLOGG
Forge and Hammer Lap Welded
DIGESTERS
POWER PLANT PIPING — SEPARATORS
FORGE WELDED PIPE — RECEIVERS —
FORGE WELDED CONTAINERS
The M. W. Kellogg Co., 7 Dey St., N. Y. C.
Boston Chicago San Francisco
All Kellogg Forge and Hammer Welded Products are insurable

HARDY S. FERGUSON
CONSULTING ENGINEER
200 Fifth Avenue New York City
MEMBER AM. SOC. C. E.
MEMBER AM. SOC. M. E.
MEMBER ENG. INST. CAN.
PAPER PULP AND FIBRE MILLS INCLUDING BUILDINGS AND COMPLETE MECHANICAL EQUIPMENT
WATER POWER DEVELOPMENT DAMS, STORAGE RESERVOIRS and OTHER HYDRAULIC STRUCTURES
STEAM PLANTS
EXAMINATION REPORTS
ESTIMATES OF COST
VALUATIONS
DESIGNS
SPECIFICATIONS

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 12, 1928.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Demand for both the pulp and the powder is about normal. The pulp is still quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3¾ cents to 4¼ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is in a sound position. Demand is seasonal and shipments against contract are moving in good volume. Prices remain unchanged and there is little talk of concessions. Bleaching powder is quoted at from $2 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—Manufacturers of casein are enjoying a persistent demand for this product. Prices remain unchanged. Domestic casein is quoted at from 15 cents to 16 cents per pound, while imported casein is selling at from 15½ cents to 16 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—The caustic soda market is exhibiting a sound undertone. Prices are holding to schedule and shading is infrequent. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.33 per 100 pounds, in large drums, at works.

CHINA CLAY.—Most of the business transacted in the china clay market during the week was along routine lines. Imported china clay is quoted at from $15 to $25 per ton, ship side. Domestic paper making clay is selling at from $8 to $13 per ton and pulverized at from $10 to $12 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. A good volume of contract business has been booked for the coming year. Chlorine is quoted at 3 cents per pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 3¼ cents to 3½ cents per pound.

ROSIN.—The rosin market continues to fluctuate. At the naval stores, the grades of gum rosin used in the paper mills are quoted at from $9.65 to $9.70 per 280 pounds, ex dock, in barrels. Wood rosin is selling at from $7.40 to $8.20 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Demand for salt cake continues active. Shipments against contract are moving in satisfactory volume. Stocks on hand are limited and prices are steady to firm. Salt cake is quoted at from $16 to $18 per ton, while chrome salt cake is selling at from $14 to $15 per ton, in bulk, at works.

SODA ASH.—Supplies of soda ash are moving in excellent volume. Numerous orders have been booked for 1929 delivery. Prices continue steady. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bags, $1.32½, and in barrels, $1.55.

STARCH.—Production of starch is being maintained in sufficient volume to take care of the prevailing demand. Prices are generally holding to former levels. Special paper making starch is still quoted at $4.07 per 100 pounds, in bags, and at $4.24 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Contract shipments of sulphate of alumina are going forward at a steady pace. Prices remain unaltered, in most instances. Commercial grades of sulphate of alumina are quoted at from $1.40 to 1.45 and iron free at from $1.90 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—The sulphur market was active. Shipments against contract are moving in a normal manner. Prices remain steady. Sulphur is quoted at $18 per ton, at mine, in lots of 1,000 tons or over, on yearly contract, and at $20 per ton for any smaller quantity over that period. On spot and nearby carloads the quotation is $21 per ton.

TALC.—Business in the talc market is seasonal. Prices are holding to the schedule which has been in force for some time past. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines. Imported talc is selling at from $18 to $20.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	4.50	@ 4.75
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	32.50	@45.00
Straw	52.50	@55.00
Chip	30.00	@42.50
Binders' Boards	65.00	@67.50
Sgl. Mla. Ll. Chip	45.00	@52.50
Wood Pulp	80.00	@85.00
Container	55.00	@60.00
85 Test Jute Liner	55.00	@57.50

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.65	@ 4.40
Easy Bleaching	2.75	@ 2.90
No. 1 strong unbleached	2.50	@ 2.75
Mitscherlich unbleached	2.55	@ 3.25
No. 2 strong unbleached	2.40	@ 2.60
No. 1 Kraft	2.50	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	3.75	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.65
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.50	@ 3.30
Soda Bleached	3.15	@ 3.30
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.50	@ 1.65

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.25	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.15	@ 2.30
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 1.90
Lindsay Garments	1.80	@ 1.85
Dark Cottons	1.60	@ 1.65
Old Shopperies	1.50	@ 1.55
New Shopperies	1.50	@ 1.60
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, heavy	1.60	@ 1.65
Bright Bagging	1.60	@ 1.65
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	3.35	@ 3.65
Domestic	3.25	@ 4.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.25	@ 3.50
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.55	@ 2.65
White envelope cuttings	3.25	@ 3.50
Flat Stock—		
Stitchless	1.70	@ 1.80
Overissue Mag.	1.70	@ 1.80
Solid Flat Book	1.65	@ 1.75
Crumpled No. 1	1.15	@ 1.25
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.70	@ 1.80
New B. B. Chips	.65	@ .75
New Env. Cut	2.40	@ 2.60
Manilas—		
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.80	@ .85
Container	.60	@ .65
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.80	@ 1.90
News—		
No. 1 White News	1.75	@ 1.80
Strictly Overissue	.85	@ .95
Strictly Folded	.70	@ .75
No. 1 Mixed Paper	.50	@ .60
Common Paper	.35	@ .40

Clay

400 tons daily

AMERICAN MADE FOR AMERICAN TRADE

H. T. BRAND
COATING CLAY
and
High Grade Filler Clay

A product developed as a result of 43 years experience in washing American Clays. Today being used in many of the largest paper mills.

Ask for Samples.

The **EDGAR BROS. CO.**
50 Church St. *New York*

The

ST. REGIS PAPER COMPANY

Daily Capacity
525 TONS

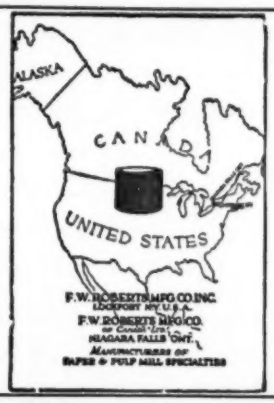
Newsprint
Catalog and Directory Papers
Fibre Wrapping Papers
Packers Oiled Manila
Specialties

General Sales Office

15 Broad St., New York

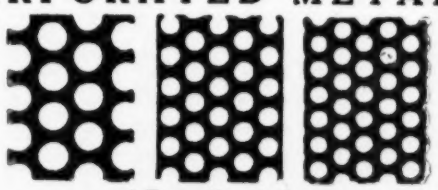
Farmers' Bank Bldg.
Pittsburgh, Pa.

BURRS



BURRS

PERFORATED METALS

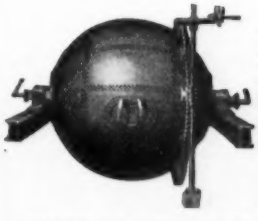


of Every Description
For Pulp and Paper Mills

THE HARRINGTON & KING PERFORATING CO.

5652 Fillmore St., Chicago, Ill.
NEW YORK OFFICE: 114 Liberty St.

SINCE 1887



Biggs Globe and Cylinder Rotary Bleaching Boilers have become known in every part of the world as standard paper-plant equipment. Repeated installations indicate very positively the complete satisfaction of our old customers.

THE BIGGS BOILER WORKS CO.
AKRON, 20, OHIO

Twines

(F. o. b. Mill)

No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¾	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¾
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¾	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	.03¾	@	.04
No. 2 Kraft	.04	@	.04¾
Wood Tag Boards	.04¾	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip	37.50	@	41.00
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined—			
(Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.95
White Env. Cuttings	2.90	@	3.00
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.00	@	1.05
No. 2 Mixed	.90	@	1.00
Ledger & Writings	1.55	@	1.65
Solid Books	1.25	@	1.35
Blanks	1.70	@	1.80
Krafts	1.90	@	2.05
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (oversize)	.65	@	.75
Old Newspapers—			
No. 1	.65	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.06	@	.40
Ledgers	.10	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	.20	@	.22
Fine	.18	@	.26½
Fine, No. 2	.15	@	.25
Fine, No. 3	.10	@	.20
Book, M. F.	.06	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.10	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
News	.03¾	@	.04
No. 1 Jute Manila	.08½	@	.09
Manila Sul., No. 1	.04½	@	.06
Manila No. 2	.04	@	.04½
No. 2 Kraft	.06	@	.06½
No. 1 Kraft	.07	@	.07½
Common Bogus	.03	@	.03½
Straw Board	52.50	@	75.00
News Board	40.00	@	42.50
Chip Board	38.00	@	40.00
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	53.00	@	55.00
Slaters (per roll)	84	@	.94
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.44	@	1.54
Best Tarred, 3-ply	1.93	@	2.08

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft	.05	@	.05¼
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Washable, No. 2	.03	@	.03½
Fancy			
Cottons—According to grades—			
Blue Overall	.07½	@	.08
New Blue	—	@	.04
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.65	@	1.80
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.15	@	1.25
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.50	@	2.60
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.80	@	1.90
Writing Paper	1.70	@	1.75
No. 1 Books, heavy	1.50	@	1.60
No. 2 Books, light	1.20	@	1.25
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.30
Common Paper	.60	@	.65
No. 1 Mixed Paper	.65	@	.70
Straw Board, Chip	.65	@	.75
Binders Board, Chip	.65	@	.75
Overissue News	.90	@	.95
Old Newspaper	.70	@	—

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2—			
Repacked	.02¼	@	.02
No. 2	1.40	@	1.5
No. 3 (Roofing)	1.15	@	1.21
No. 4	1.25	@	—
No. 5A	.85	@	.90
B	.80	@	.90
C	.70	@	.80
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.70	@	1.85

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.04	@	.04¾
Common Bogus	.02	@	.02¾
Delivered New England points			
Straw Boards, rolls .009			52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board		@	32.50
Chip Board			30.00
Single Manila Lined Chip			45.00
Single White, Patent Coated Newsboard			
Bender	70.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.50	@	2.60
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.55	@	1.60
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.20	@	1.25
White Blank News	1.70	@	1.75
Old Kraft	1.90	@	2.00
Print Manila	.80	@	.90
No. 1 Mixed Paper	.55	@	.60
Overissue News	.85	@	.90
Old Newspapers	.75	@	.80
Box Board, Chip	.65	@	—

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.50
Manila Rope—			
Foreign	4.00	@	—
Domestic	4.00	@	—
Mixed Strings	.90	@	1.00
Jute Wool Strings	—	@	1.00
Scrap Burlaps	1.50	@	1.60
Scrap Sisal	1.50	@	1.75
Scrap Sisal for anreading	1.75	@	2.00
Wool Tares, heavy	—	@	1.50
New Burlap Cutting	1.90	@	2.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09	@	.10
Silesias, No. 1	.06	@	.06¼
New Unbleached	.09½	@	.10
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06	@	.06½
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
Corduroy	.03	@	.03¼
New Canvas	.08	@	.08½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	—	@	2.50
Thirds and Blues—			
Repacked	2.00	@	2.11
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.55	@	1.60
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.25	@	5.50
New Checks & Blues	4.25	@	4.50
Old Fustians	1.90	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09¼	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	62.00	@	—
Sulphite news grade	62.00	@	—
Sulphite, bleached	75.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.70	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.11½	@	—
Fancy Shirt Cuttings	.05½	@	—

Standardized Production Cannot be achievedbyguesswork

no matter how careful your processes are or how perfect your formulas, they will fail to give you perfect products unless you KNOW what your machines are doing.

Cold Waterlogged Drying Rolls are instantly detected by the use of

Cambridge Surface Pyrometer

Simply apply the Pyrometer to the moving surface of the roll and read off the *exact* temperature in degrees Fahr. Any intelligent worker can use it. The extension arm enables him to reach the hard-to-get-at spots.

Consistent use of the Cambridge Surface Pyrometer quickly pays its way in saving of steam and in improved production.

Send for list PT.

CAMBRIDGE
INSTRUMENT Co INC
3512 GRAND CENTRAL TERMINAL
NEW YORK CITY

PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SEVENTH YEAR

Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President — J. BANNINGA, Secretary
Executive and Editorial Offices, 10 East 39th Street, New York
Chicago Office: 123 West Madison St.

TABLE OF CONTENTS

Copyright, 1928, by Lockwood Trade Journal Co., Inc.

Paper Producton Gains During October..... 25
Kaydeross Paper Co. Buys Mill 25
United Paperboard Wins Suit..... 25
Joint Printing Committee to Open Bids Jan. 28.. 26
Ask Lower Freight Rates on Box Board..... 27
Peshtigo Paper Mills Ordered To Be Sold..... 28
Menasha Products Co. to Expand 28
News Print Conferences Continue..... 30
Better Times for Dryden Paper Co..... 30
Demand for Paper Fairly Good in Chicago..... 32
Sulphite Paper Association Plans..... 32
Pennsylvania Paper Mills Slacken Operations ... 34
Northampton Paper Mills To Be Sold 34
State Owned Paper Mill Voted Down..... 34
Chatfield Paper Corp. Organizes..... 36
American Writing Not to Transfer Divisions.... 36
Ontario Paper Manufacturers Continue Active.. 38
Victor Drury Heads E. B. Eddy Co..... 40
Construction News 42
New York Trade Jottings..... 44

Power Plant Section 46
Woodpulp Production 52
German Paper and Pulp Output Higher..... 52

Editorial 54
American Foresters Convention Program..... 55
Starts Another Storage Dam on Gatineau..... 55
Buys Minneapolis Envelope Plant..... 55

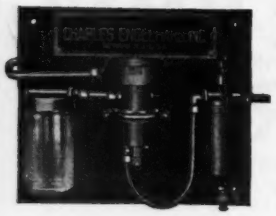
Technical Section
Sawmill Waste for Manufacturing Pulp.... 57
Svensson Chip Filler for Sulphite Digesters.. 58
Chemical Analysis of Pulps..... 59
Paper for Offset Lithography..... 68

Cost Section 69
News Print Production for November..... 72
Install Bag Machines at Longview..... 72
Imports of Paper and Paper Stock..... 74

New York Market Review 78
Miscellaneous Markets 80
Market Quotations 80
Paper Mill Stocks and Bonds 84

THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements 87, 88, 89, 90



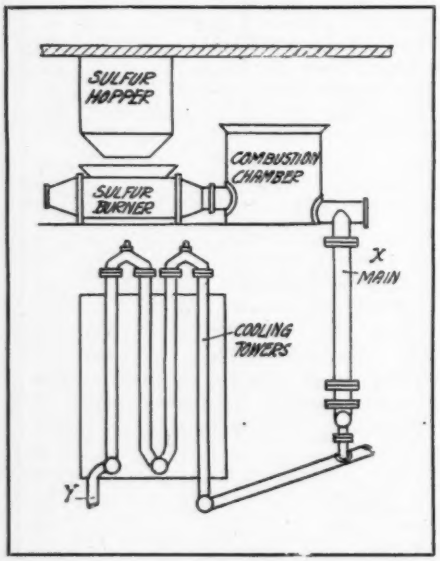
ENGELHARD SO_2 ANALYZER

No moving parts

Makes possible economies in sulphite pulp mills or in acid plants. It works continuously and electrically, warning the operator in advance of trouble. Simple in construction and operation, it is the most accurate gas anaylzer in industrial plants.

TYPE S RECORDER

Electrically and continuously makes a graphic record of SO_2 analyses. It is calibrated for 0-20% for sulphite pulp manufacture, and 5.5 to 10.5% for acid making. It can make up to 6 records at once in black or colors. Can be placed at a distance from the analyzer anywhere in the plant.



In sulphite pulp manufacture, gases are sampled at "X" close to the combustion chamber, so that any change in percentage of SO_2 will be registered as soon as possible. In sulfuric acid plants, gases are sampled at "Y" to show any air leaks in the coolers and indicate the source of trouble.

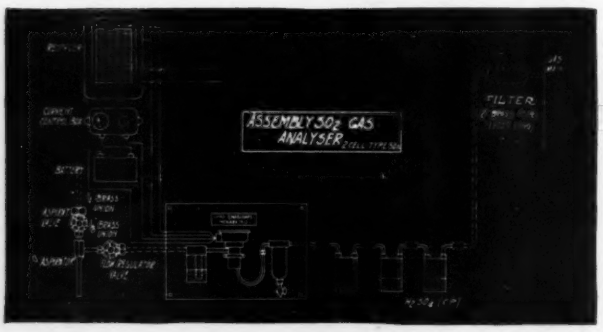


Diagram showing how SO_2 Analyzer, Type S Recorder, and Pyrometer connect with a sulphur burner

Engelhard SO_2 Recording Analyzer

Accurately measures percentage SO_2 from sulphur burners in manufacturing sulphite pulp and sulfuric acid

The analysis is made using the thermal conductivity principle authoritatively pronounced the most accurate method for gas analysis.

Corrosion or vibration eliminated by quartz sheaths (exclusive *Engelhard* feature) protecting the active heating elements.

Frictionless, suspension type galvanometer (exclusive *Engelhard* feature) makes the instrument rugged, dead beat, enduringly accurate, and can withstand severe shock.

Shows the products of combustion at vital spots, thereby preventing costly waste of sulphur, fuel, time and labor.

Continuous recording shows conditions of previous shift.

Helps the acid maker get a strong SO_2 with minimum of SO_3.

Efficient curves may be plotted to guide future work.

Extremely sensitive—changes in SO_2 can be detected within .3 of 1%.

Increases efficiency of men and machinery and controls quality of pulp produced.

On request, and without obligation, we will gladly have one of our engineers call at your plant to give you first-hand information about the Engelhard SO_2 Recording Analyzer.

Standard for 30 years

Recording and Indicating Instruments
Gas Analyzers
Thermocouples
Automatic Temperature and Gas Control
Thermometers
Pyrometers

CHARLES ENGELHARD, Inc.

90 CHESTNUT STREET, NEWARK, N. J.

Boston
New York
Pittsburgh
Cincinnati
Cleveland
St. Louis
Los Angeles
Ottawa
Montreal
Toronto